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THREE YEARS IN CANADA :
AN ACCOUNT
OF THE
ACTUAL STATE OF THE COUNTRY
IN 1826-7-8.
COMPREHENDING
ITS RESOURCES, PRODUCTIONS,
IMPROVEMENTS, AND CAPABILITIES;
AND INCLUDING
SKETCHES OF THE STATE OF SOCIETY,
ADVICE TO EMIGRANTS, &c.

BY JOHN MACTAGGART,
CIVIL ENGINEER, IN THE SERVICE OF THE BRITISH GOVERNMENT.

IN TWO VOLUMES.

VOL. II.

LONDON :
HENRY COLBURN, NEW BURLINGTON STREET.

1829.

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May 1913*

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THREE YEARS IN CANADA.

THE WEATHER.

THE extremes of heat and cold are felt to be more severe in the cleared districts than in the uncleared; mercury frequently freezes at Quebec and Montreal, and the summers are so hot for some days, that it is a wonder how animals contrive to live. Rain is not very abundant; it prevails most in the spring and fall. Mists in the inland country are not so frequent as in Britain, but on the sea-coast much more so. Thunder and lightning are very common; the flashes more vivid and bright, and the peals much louder. Hail is not very common; and the *piles* of snow are very regular figures, hexagonal and sometimes octagonal *stars*: the snow never falls in

such minute particles as sand, or yet in flakes as large as common butterflies. The snow generally begins to fall about the middle of November : in the woods it is seldom attended with wind, but in the cleared places it blows into huge wreaths ; the road-ways are filled full between the fences. In the beginning of the above-named month, there are generally a few very fine warm days, called the *Indian Summer*. The coldest month in the year is January ; if water be then put in bed-rooms, wherewith to wash, the jugs and ewers will be broken ere morning. The first indication of cold weather having set in, is destruction occurring amongst porcelain and glass vessels containing fluids. If wine or porter be once frozen, it is very insipid when thawed. To malt grain of any kind is very difficult, the temperature of the seasons varying so much : nevertheless, there are numbers of breweries and distilleries ; but the ale and spirits they produce are not very good. Tolerably fine cider is made, and there are cider-presses all over the country ; the climate is extremely favourable for the growth of apples and melons. The branches of the apple-trees in the orchards, towards the end of summer, must be well propped, else they will break down with their loads. The best crops of wheat are pro-

duced by sowing it in the fall: it is not sown so thickly as with us; one bushel will sow as much as three. Spring wheat is also sown; from thirty to forty bushels an acre is considered a good crop of either, weighing from forty to fifty lbs. per Winchester bushel.

Crops are not built in stacks, but put in large barns, or under sheds, having moveable roofs, that can be raised or let down at pleasure. The *grub* is not much talked of by the farmer; but I have seen them look serious and express themselves dolorously about blight, rust, and mildew. The squirrels, and a bird like the blackbird, are often troublesome amongst the crops. Flax and hemp are not much cultivated; but the soil in many places is accounted favourable. Tobacco is begun to be raised, and promises to do well. They do not sow rye grass, but a kind of grass seed called *Timothy*, which makes good hay: those having beaver meadows in their estates, obtain a good deal of hay from them. Mowing and reaping are difficult in the New Settlements, the land being so rough, and roots and stones sticking up. They reap with the toothed sickle, and mow with a short scythe. The stones to sharpen the scythe are of a white free-stone nature, and are brought from the States; it is not a *composition stone*, but cut from

a natural block. There is a species of gneiss found in Canada good for sharpening axes, and highly esteemed as the *callumey stone* is among the Indians,—a grey kind of fire-stone they use in their pipes of: there is a river called the *Callumey*, whose banks contain this stone, sharpening scythes no sand is used, but I think it might be to much advantage.

Oats are cultivated and succeed tolerably. A gallon of oats is thought to be a good feed for a horse. The Canadian horse is one of the best and best of his race, able to endure the greatest fatigue, and when he is whipped by his master he is said to be getting his allowance of oats: he would outdo those of any other country I am acquainted with. The milk of the cows tastes good if they feed in the woods, and is not considered very wholesome. The trees are in full leaf by the middle of June, and as bare as they are by the end of November: there are a great number of evergreens, and few birds of song in the woods. Along the margin of the lakes the snow does not lie above three months in the year. The snow is of considerable use to the farmer, it forms a covering for his crops and a good market. A farm in a tract of country that has five months sleighing snow in the year is considered

to be in a more favourable climate than that which has but three: it is generally more healthy, and has less mud and rain. The weather is very changeable, and when it does change, it is always on a sudden: there are few who can prophesy from appearances with any degree of success, more than five hours before the alteration takes place: the heavens will sometimes get overcast, and the rain begin to pour in a twinkling. The sky is seldom very beautiful to look upon; never have I seen what may be called a respectable towering woolly cloud.

Winds are seldom severe; sometimes, however, they lay waste extensive belts of the forest for thirty miles at a stretch, and from a quarter to a mile broad: these are called Windfalls. Trees growing on the banks of the rivers lean in towards the water: the reason of this is obvious, as their roots are all on one side. It is said that water attracts them; this I do not think is the case. Water may attract the *willow* to a certain extent, which may account for the Dutchman's art in discovering spring-wells with a forked stick. Wide roads through pieces of forest-ground are dangerous to travellers during a squall of wind: I have seen them crashing down behind and before in a frightful manner; and at Stoney Creek, saw a

poor woman and her son who were killed by a tree being blown down on a little cart they were riding in,—the horse was not hurt. The weather is sometimes so excessively sultry, that we do not know what to do with ourselves, and are like to be suffocated; we seek for the lake or river to have a swim, but this does no good, the water is tepid:—suddenly again, perhaps, it may get cold; perspiration is checked, and fever the consequence. Many people are drowned in the country, by bathing in summer, and venturing on unsound ice in winter; mine worthy original Johnny Picken from Paisley had nearly suffered by this incautiousness.

It was *new-year-day*-time, and Johnny was determined to *get fou and keep fou* as long as he could. His credit ran aground at a Yankee public-house, where Jamie Lawson his cronie, and he, were passing the time with a detail of their old Scotch sprees, and criticisms thereon. Johnny drew himself together, pipe in teeth, and wad cross the Ottawa water to his friend Mrs. Firth, a gude honest Scotch body, wha had aye a drap worth the drinking. He started, but keeping too near the whirlpool, where the ice did not freeze to that strength it did elsewhere, down went Johnny with the pipe in his teeth. Up came his friend Lawson, half-fou, and cried, “What are ye sticking there at, ye

blutter?"—"Come this way, man, and gie's your hand," quoth Johnny. Lawson, who had never refused him any thing, ran round; and marvellous to say, reached him his hand, by which he was dragged out. "Thank ye, man," he exclaimed: "like yoursell, Jamie," when he found himself on the solid ice. But what may appear singular was, that although Johnny had plumped into a *weltee*, the good-natured humour of his phiz had not forsaken him, nor yet the pipe his teeth: he reached Mrs. Firth's, although his clothes were frozen on him, perfectly happy.

It is generally conceived in England, that the long snowy winter acts against Canada. Nothing can be farther wrong than this idea, as has been stated. The farmer requires it all; and the lover thinks it is much too short, for it is only in the sleighing season that he has a chance of seeing his mistress. The moon, as having influence over the weather, is not thought of in Canada, the changes not being of a *Lunarian* nature. The Indians ascribe nothing to her power, although a superstitious people. This is one of the most convincing proofs I ever met with against the doctrine, advocated by sailors chiefly, and some of the peasantry of Europe, that the changes of moon affect the weather and atmosphere.

Dr. Olbers, the distinguished astronomer at Bremen in Germany, who has discovered some new planets, and prophesied the coming of many comets, would hardly have bothered his brain, honest man, about the influence of the moon, if he had been a Canadian. His sentiments on this subject, in the "Annales de Chimie et de Physique," are excellent. I shall give a few of them here, as a proof of science and American Indians agreeing.

"The moon enlightens our nights, draws the earth a little from its elliptic orbit, occasions a small oscillation in the earth's axis, produces the tides of the sea, and a similar but less motion in the atmosphere. Besides these demonstrable effects, many have believed, from time immemorial, that the moon exercises a considerable influence upon the health of mankind, upon animals, upon vegetation, and upon chemical products. Experience only can throw light upon this subject; and long and well-conducted experiments have been made. As to the influence of the moon upon the *weather*, the result deduced from one series of meteorological observations, is always contradicted by another series. We cite, for example, Howard, who, after careful observation, believed he had discovered that the barometer was usually lowest, that is, the air was more dense, at the time of *new*

moon. Cotte, on the contrary, to whom meteorology is so much indebted, and who commenced in order to confirm the remarks of Howard, found, by twenty years' observation, that the barometer was lowest at the time of *full* moon. Lalande and Lamarke also have drawn the most opposite results from their observations respecting the influence of the moon in her passage by the plane of the equator. But what is decisive on this subject is, that in the equatorial regions, where the influence of the moon ought to be the greatest, not a trace of it is to be found; but the heat, rain, winds, &c. all depend on the distance of the sun from the zenith of the place. Foul weather and fair often prevail in different places at the same time, and consequently under the same phase (appearance) of the moon. M. Bode, for example, collected the remarks made during the time of an eclipse of the sun, Nov. 18, 1816; from which it appears that a great diversity of weather, without any regard to order, prevailed on that day through a great part of Europe. Professor Brandes compared, with great labour, the variation of the weather over a great part of the earth's surface, in the year 1783, and found no relation between it and the phases of the moon. Some suppose that the full moon, when rising, dissipates the clouds; but clouds usually disappear

in a tranquil evening. Some who live near the sea-coast, believe that the changes of the weather, and the force and direction of the wind and clouds, depend on the tides. We may here observe, that the tides of the ocean, and those of the atmosphere, do not happen at the same time. The air being easily moved, and hindered by no obstacle, instantly obeys the attractive force of the moon ; but high-water, in the open sea, does not take place till three hours afterwards ; and on coasts and in bays, it happens still later. The astronomer Horseley, at Oxford, in England, could perceive no relation between the weather and the tides, or moon ; and Toaldo, from the observations made during fifty years at Poleni, in Italy, where the climate is very mild, while he thought that he *could distinguish* the influence of the moon upon the weather, was convinced that it was *extremely small*. A series of experiments for many years has convinced me, that in our climate, where the weather is subject to more considerable and numerous variations, the rules of Toaldo are entirely wrong. For example, on the 7th of December, 1813, the full moon coincided with the perigee, and two days after, the moon had its greatest northern declination ; so that, from the principles of Toaldo, the influence of the moon ought to have

been the greatest possible ; but, notwithstanding all this, there was not any sensible change in the weather. I believe, then, that I have *demonstrated* that the influence of the moon upon the weather is so small, that it is *totally lost* amid the great variety of other forces and causes which change the state of our atmosphere.

“ And if the influence of the moon is so insensible on the *weather*, we are entitled very much to suspect its pretended influence either upon *men, animals, or plants*. In fact, it is *all of it* owing to illusion and prejudice. Observation shows, that the notion that men weigh one or two pounds more at the beginning of the month, and that lobsters, oysters, &c. are fatter when the moon is on the increase, is entirely without foundation. We may place great confidence in the very careful experiments made by the celebrated agriculturists, Ladquinterie, Nardmann, Reichard, and Hartenfels, and by the great naturalists, Buffon and Reaumur, who proved distinctly, that the *increase or decrease of the moon has no influence either upon the germination of seeds, upon the rapidity of their growth, or upon their quality*.

“ I can positively assert, that I have carefully inquired into the influence of the moon upon the sick, during the long time that I have practised

medicine, and that I never perceived any relation between the moon and my patients ; and all modern physicians have come to a similar result. It is in respect to the influence of the moon, as in many cases of reverie, we *see* it only when we *believe* it."

The more Canada gets shorn of her forests, the more unsettled the weather becomes—the hatchet may diminish the degree of cold, but will not improve the climate. The human body and the thermometer feel not the effects of temperature in the same kind of way. I have seen mercury nearly frozen without feeling the cold very intense. The United States, fifty years ago, were blessed with a more salubrious and settled atmosphere, than they are now.

CRANBERRY MARSH AND SICKNESS.

THIS infernal place lies between the Rideau Lake and Lake Ontario; the route of the Rideau canal goes directly through it. The dimensions are about eighteen miles long, and in some places about two miles broad. It is almost covered with extensive *flats* of cranberry bushes: these have long tangled roots above eight feet long; so the bushes, although rooted in the marsh, swim on the surface of the fetid waters. Round the flats are little winding navigable paths for canoes: to keep the right ones in going through the marsh is a thing of much difficulty; and if a person jumps out of the canoe on to the cranberry *flats*, these slowly sink with him, and he shortly discovers that he has got down to his middle. The berries are very plentiful; they are globose, transparent, of a yellowish colour, sometimes marked with little black spots;

they something resemble sparrow eggs, and may be gathered in *bushels full* at the close of summer. Settlers will go ten miles to gather them; but as the mist of the marsh is extremely noxious to life, people prefer staying at home, instead of visiting the abode of the ague. The malaria of this dreadful place was the chief cause, in my opinion, for putting a stop to the progress of the public works in the warm weather of 1828; hundreds of labourers and mechanics were laid down with sickness, many of whom never rose again. To clear a way for the canal through this marsh was generally considered to be difficult, as labourers could not dig the bushes with spade and shovel, and as their stalks and roots were extremely tough, and could not be cut or dragged out of the way. I proposed the following method; but it was not acted upon, lest the matter should be made worse.

From this marsh two considerable streams broke away in different directions; one called the *Gananoque*, which falls into the St. Lawrence, the other *Cataraque* into Lake Ontario. At the head of these streams, viz. at the *White Fish Falls* on the former, and the *Roundtail* on the latter, people having *saw-mills* erected on them, had built dams, by which the water in the *marsh* was raised eight feet above its natural level. This was done for

the double purpose of keeping a good supply of summer water for the mills, and also to enable the millers to transport down the winding channels saw-logs, which are found, of good quality, on the shores of the marshy lake. These dams, although the millers *might dislike it*, were proposed to be knocked away in the spring, and the marsh drained as low as possible of its waters; in this state it was to lie and dry before the hot suns of summer; and at the close of autumn to be *set fire* to, and burned out of the way; the dams to be afterwards raised, when a lovely *lake* would be produced in its stead, which would not only give a free canal navigation, but tend greatly to destroy pestilential qualities. This plan was overruled, however by the growling of the millers, and the alarm that, if the marsh was left without water, the muddy venom would be set free, the exhalations from which might be more prejudicial to health than those in the present state. But when the marsh in its *present state* stops the progress of the public works during summer, what *worse* thing can it do? The plan will very likely yet be carried into execution. It is singular that the banks of this marsh are bold, and composed of moor-stone and granite, amongst which there are many singular holes and dens; but by *whom* inhabited, it

has not been my fortune to learn. Altogether it is a curious place. Its entrance from the north is a narrow deep defile. When the canal is constructed, its *grand waste weir* will be the *Gananoque River*, the floods of the rivers and lakes will be thrown down it, and the works left uninjured, as they are placed on the Lake Ontario branch or Cataraque. On passing through the marsh in the hot season, a *blue mist* seems to stick to it morning and evening, but vanishes with the mid-day sun, when a *quivering atmosphere* appears. The smell is very nauseous, like that of a cadaverous animal in the last stage of decomposition. This marsh is but partially frozen in the most severe winter.

Canada has a large share of disease, like most other countries: it is not so very *fine* and *healthy*, as has been reported. There are many hale old people in it, to be sure; but such persons are to be met with even in *Batavia*, the most sickly town on the earth. If we had no occasion to *expose* ourselves to the weather, it is probable that we should find ourselves enjoying better health than we commonly do; but who can keep from exposing themselves? We must go forth on our business, whatever that may be. The majority of mankind must struggle to live, in order to die. If we can afford to go out and come in when we

please, I dare say there is not any more to be said against sickness in this climate, than in England; but if we have to wander in the wilderness amongst swamps, as many have—to sleep amongst them, and be obliged to drink bad water—the *Dysentery*, *Fever and Ague*, and all manner of bilious fevers, are sure to succeed one another. The *Fever and Ague* of Canada are different, I am told, from those of other countries: they generally come on with an attack of bilious fever, dreadful vomiting, pains in the back and loins, general debility, loss of appetite, so that one cannot even take tea, a thing that can be endured by the stomach in England when nothing else can be suffered. After being in this state for eight or ten days, the yellow jaundice is likely to ensue, and then *fits* of trembling—these come on some time in the afternoon, mostly, with all. For two or three hours before they arrive, we feel so cold that nothing will warm us; the greatest heat that can be applied is perfectly unfelt; the skin gets dry, and then the *shaking begins*. Our very bones ache, teeth chatter, and the ribs are sore, continuing thus in great agony for about an hour and a half; we then commonly have a vomit, the trembling ends, and a profuse sweat ensues, which lasts for two hours longer. This over, we find the malady has run one of its

rounds, and start out of the bed in a feeble state, sometimes unable to stand, and entirely dependent on our friends (if we have any) to lift us on to some seat or other.

This is the most prevalent disorder: sometimes it proves fatal, but not generally so by any means. It leaves, however, dregs of various kinds behind it, which often end in dropsies, consumptions, &c. Those who have had it *once*, will most likely have a *touch* of it every year. A moist, hot summer fosters it very much; and when we fairly take it, we are rendered useless for any active business for many months. The *sulphate of Quinine*, a preparation from bark, is what the doctors administer for the cure of this wearisome distemper: it seems to be a very potent medicine, but being very dear, poor people are at a loss to procure it. The Indians are never troubled with any thing of the sort. There is a kind of ague, too, the patient does not *shake* with, termed the *Dumb Ague*: this is very difficult to cure, and mostly affects those advanced in years.

The *Lake Fever* prevails at Kingston, York, and other towns and villages on the borders of the great lakes. It is often fatal, and the nature of it as yet seems not well understood by the faculty.

Consumption is also very frequent, and of the most rapid nature too. Dr. Christie, myself, and

some others, were one evening resting ourselves in the Hull hotel, when, behind the *arras*, some one gave a cough. "That's a *church-yard cough*!" exclaimed the Doctor; "and whoever gave it will be in the grave in less time than six weeks from this date." Astonished at the matter, we started up, and went to explore the adjoining rooms. We did so; and although we found plenty of people in them, not one seemed any thing like ready for the grave in six weeks; all looked pretty fat and healthy. We inquired about who had been *coughing*, but all denied it, or rather they were not aware of any one—the very person himself was not aware. We went back to our apartment, and having been there a few hours, we heard a similar cough again. Up we started, determined to discover its author; and traced it to proceed from a *Master Mason*, a very strong healthy-looking young Scotchman. I would not believe the Doctor; but his words proved perfectly true. The *lad* died in less than *six weeks' time*, to the grief of a fine young woman he was going to have for a wife. I went to see him on his death-bed: she was there, and weeping over him. Dear girl! her lover died,—but she had another in a few weeks afterwards, and was married. Mr. Mackay, my worthy, gave them their *outfit*:—of course I was at the wedding.

Charbon is a disease which seems to afflict the poor French peasants: it is something of the nature of the *yaws*. A small *black spot* appears on some part of the body,—hence the French name *charbon*, or charcoal: this is commonly on the *arm*, and there is no remedy but that of almost instantly cutting out the infected part. It is reported that they are tainted with this loathsome complaint from their handling cadaverous animals, skinning and eating such, as they frequently do,—the same as the poor Scotch moor farmers do their braxy sheep, which is the root of their *sibbans*, or *yaws*.

The country swarms with quacks, and a man of real surgical merit receives no encouragement; people are apt to prescribe for themselves when they take a turn of illness, and so are hurried out of the world sooner than most likely they otherwise would be. “Every lumberman carries a lancet,” is a common saying; and those from the United States will not employ any as a surgeon, unless he be a Yankee likewise: as they conceive, if an Englishman were allowed to open a vein, he would bleed them to death; or, if they took one of his powders, it would poison them. Tepid baths are much in request in the towns, and found of much service during winter, when the cold seals the pores, and “checks perspira-

tion." The Indians are well acquainted with the hot-bath, and derive from it great cures. They build it of rude stones, by the banks of a lake, or river, and in it kindle a fire, and keep it up until the stones and sand be hot; they then sprinkle some water, and bring forth the patient: having stretched him, or her, in the rude bath, water is poured against the hot stones, which flies hissing on to the body: when this is done, it is wrapt up in buffalo-skins, and a profuse sweat thereby obtained.

In the summer of 1828, the sickness in Upper Canada raged like a *plague*; all along the banks of the lakes, nothing but languid fevers; and at the Rideau Canal few could work with *fever* and *ague*; at *Jones's Falls* and *Kingston Mills*, no one was able to carry a draught of water to a friend; doctors and all were laid down together. And people take a long time to recover amid these hot swamps; it is not two or three weeks ill, and then up and well again, but so many months. The Ottawa is conceived to be a very healthy river; the people on its banks are seldom or never sick; and the Lower Province is much freer from distemper than the Upper. Stumps in a certain state of decay are said to be dreadfully obnoxious to health.

MINES OF CANADA.

CANADA is rich in mines. Iron seems to abound in great quantities, and of an excellent quality. Silver ore is found by the Bay of Quinty, Upper Canada: I have beautiful specimens of it. Dr. Dunlop analyzed it, and considered it good. There is also much of it brought from the *Rocky Mountains* by the Indians. About Hawkesbury, 60 miles above Montreal, there are immense quantities of plumbago; this seems much more valuable than that in the market from *Borrowdale*, in Cumberland. Indeed, all up the Grand River, or Ottawa, plumbago largely prevails. Some symptoms of copper I have seen in various parts of the country. On the banks of the River Gattineau much lead and tin abound; beautiful specimens are brought down by the Indians. My enterprising friend, Mr. Tiberius

Wright, of Hull, made them splendid offers if they would conduct him to the mines; but they would not go with him. It seems, when minerals are discovered by these curious, reflecting people, they hold such extremely sacred; as witness *Hearne* and his Chief of the Coppermine Travelers, *Matonabee*. After Mr. Wright had entreated with an Indian until he was weary, at last he proposed that he would conduct him within a *bow-shot* of the *mine*, but he would not point it out; he would *shoot* an arrow in the direction in which it lay. Mr. Wright would have accepted his offer, but *squaws* gathered round the Indian, and would not let him go. However, it is by no means considered difficult to discover this mine; it is about 50 miles, or two days' canoeing up the *Gatineau*, and, most likely, on the banks of the *Great Fall*. Having examined with care the Iron Mine at Hull, the following was the result:

“ Convened at Hull, on the Ottawa River, on the 28th December, 1826—Philemon Wright, Esq., Thomas M'Kay, Robert Drummond, James Gentle, John Redpath, John Burnett, John Burrows, Doctor Christie, Tiberius Wright, and John M'Taggart;—when it was conceived and taken into consideration, that as the mountains of

Hull abound in various valuable minerals, such as iron-ore, lead-ore, marble, and granite—

“ That a Company be formed forthwith for the purpose of working these mines, and obtaining therefrom whatever of the valuable minerals and metals may abound in the Township of Hull ; and the above-mentioned gentlemen conceiving that a fair profit may arise from the working these mines, considering the situation in Lower Canada in which they are placed, and as Mr. Wright, the Lord of the Manor, comes liberally forward with his ideas, they feel no hesitation in joining together as an honourable Company for that purpose, to be now and hereafter styled ‘The Hull Mining Company.’

“ Philemon Wright, Esq. being, by the unanimous voice of the company, called to the chair as president, and his health being drunk, the company proceeded to elect other office-bearers, when Doctor Christie was elected secretary, and John M‘Taggart engineer to the Company.

“ The worthy president, Philemon Wright, Esq. having proposed, that for the future management and execution of business, a committee be appointed, and that out of the gentlemen who have come forward and enrolled them-

selves as members of this Company, that this committee be elected.

“ Mr. Thomas M'Kay having been duly elected acting-manager of the committee for the time being, and for so long a time to come as the Company shall fix, Mr. M'Kay, therefore, holds himself for the time being, and so long as the Company shall think him eligible, acting-manager of the committee for the benefit of the Company.

“ Mr. Thomas M'Kay having been duly appointed by the Company acting-manager of the committee, he proposed that Mr. Redpath, Mr. Drummond, Mr. Burnett, and Mr. Tiberius Wright, should form the members of the Committee, who were duly appointed and sanctioned by the Company.

“ Philemon Wright, Esq. the president, and Lord of the Manor, being asked by the Committee what per centage he would be willing to receive on the profits accruing from the mines and minerals in said mountains of Hull, gives it as his decided opinion, that, as he conceives the ores valuable, and as he is a member of the Company, he is willing to receive, for the period of ten years from the present time, the amount of 2*l.* per cent. per annum on the net proceeds of the concern ; and if, after the lapse of this time, Mr.

Wright feels willing, and the mines, &c. turn out to be a profitable speculation for the Company, they will further recompense him for his liberality, as they shall see proper; and that it shall ever be his most anxious endeavour to do every thing in his power towards forwarding the interests of the Company, and the aggrandizement of his own township of Hull.

“ Philemon Wright, Esq. also agrees, that he is perfectly willing to abide by every decision of the Company, or the acting committee; that he shall grant them a road-way from the mines to the Falls of Chaudiere, or any where else the Company think proper; and also, he will grant a piece of land, if the Company think necessary, for a mill-seat and manufactory for the works; and that the value of this property, viz. the road-way and manufactory, shall be fixed by the acting engineer of the Company, on the part of the said Mining Company, and a gentleman of skill, proposed by Mr. Wright. In the event of these gentlemen not agreeing on this point, they feel willing to refer it to a third party, and for this third party we propose a neutral gentleman of merit, according as the acting Committee and Mr. Wright shall think proper. And after his decision, we consider all law at an end, and that the business cannot be settled. Hoping, however,

that this will never take place, we trust that our worthy President, P. Wright, Esq. and the other gentlemen in this honourable Company will ever act so that no turbulence or disputes shall take place.

Having therefore finished the minutes of the proceedings of the Company, we propose that the members present shall sign their Christian names to the same. We have drawn them out on as fair principles as circumstances seem to admit: yet after a time, if it is thought that there are errors in the same, as no men's minds are infallible, we sincerely hope that they may never be called to account; they have been compiled with the most perfect, upright, and honest intentions, and if evil enters the concern and disconcerts business, what can be done but merely do for the best? and the best in this world cannot do better.

(Signed)

P. WRIGHT.

A. J. CHRISTIE, *Secretary.*

J. MC TAGGART, *Engineer.*

T. MC KAY, A.C.W.

JOHN REDPATH.

ROBERT DRUMMOND.

JOHN BURNETT.

(Witnesses) JAMES GENTLE, M.

JOHN BURROWS, M."

Such was the termination of the business. The parties signed the *instrument*, which was got up by me in haste, at the Columbian, the only house the country afforded within *fifty* miles of the scene of action; and when I consider the numbers and nature of the crowd which crammed every room during the cold snowy night that this Committee was formed, it seems strange how it was done at all.

This mine has not yet been opened; however, there is no doubt it will, the situation and quality of the ore being excellent. We had some implements of husbandry made from the ore, which answered extremely well, and were very tough. The Company expected to get the Big Kettle Bridge of *bar iron* to furnish, which would have set the mine a-going, while the great public works within four miles of the ore-bed would have consumed a very large quantity,—but this could not be obtained; the merchants in Montreal having large lots of English iron on hand, thrust us out of the market, although I am certain that the Company, had they received any encouragement, could have furnished Government at a much cheaper rate, as the carriage from Montreal was so enormous. And were even this excellent mine now opened, the Rideau Canal, and the country

round, would derive much benefit from the same. I am also inclined to think, that this iron is of superior quality to any we can find in England, and therefore might even be brought here at a profit. But whenever *ship-building* begins at Montreal, a thing almost sure to take place to a great extent in a few years, this mine will evidently be brought into great request. At the city above-named, wood and iron may be had in greater abundance than in any other place in the world; there is also plenty of water to float from it a ship of 500 tons to the ocean, and if the channel through Lake St. Peter be deepened, a thing which can very easily be done, the largest ships may be taken down: were they fixed no the *lifting-frame*, they might even be floated there as it is at present.

The Marmora iron-mines, in Upper Canada, on the *Crow River*, which is connected with the *Trent* Navigation, ought also to receive every encouragement, as this would save all *transport* up to the great lakes. Here ought cannon to be *cast* and *bored*, as at Carron on the Clyde, and balls, gun-carriages, &c. produced. The time will come when steam-boats for war and peace will be found in great plenty on all the lakes; when *Kingston Dock Yard* will tell a tale, do its own work, and not be

only for putting ships together, whose *pieces* come from England, as heretofore. A large man-of-war now lies there rotting, which cost Government nearly five hundred thousand pounds, the chief part of which was expended in land-carriage of material from Lower Canada, when *better materials* than Britain can furnish lay quite beside the dock-yard, in a state of nature. These *mills* then, and those of *Hull*, at the entrance of the Rideau Canal, will yet be in full operation. The *British Navy* must look to Canada for *ships*, and here they *grow* in the greatest abundance; and here is *iron* to bind them, and plenty of *zinc* to sheath with, likewise; *hemp*, too, may be cultivated to advantage.

It is from these commodities, which England largely requires, yet has not within herself, that the Colonies will find their profit; and the raw material for the British navy is in Canada, and may be there wrought up to advantage: the *manufactory of ships*, or rather steam-boats, will be the one which will take the lead of all others in that country.

Some time after the foregoing proceedings, I dropped the following notice into the "Herald:"

"While the engineers were exploring the country for the route of the Rideau Canal, they dis-

covered, in a mountainous range in the township of Hull, an immense bed of iron ore of the richest quality, specimens of which have been brought by them to Montreal; also in the same mountains were found amazingly large blocks of white, green, and variegated marble, with blue, black, and silver granite of the most valuable description: in consequence of which a party of enterprising gentlemen have entered into a covenant to work these mines, designated 'The Hull Mining Company.' It is certainly pleasant to reflect that the more Canada is explored, the more interesting she becomes. There is a wealth in her wilderness yet undreamed of: her mountains swell with valuable ores; her rivers swarm with fish yet unhooked; her plains teem with fertility, and her forests are worth more than ten times the timber they contain. As yet, she has been viewed only by the eyes of lumberers and furriers, the former with their hatchets, the latter with their guns; now she is undergoing the strict inspection of men of science, by the orders of a liberal Government, who look not to this object, nor to that, for the benefit of particular interests, but to the country as a whole, embracing a thousand objects interesting to mankind."

Many persons afterwards were induced to visit

the mines, and no one did so without coming away very well satisfied. The famous mineralogist, Dr. Bigsby, who attended the surveyors on the boundary line business, and who has given us a very learned treatise on the minerals of Canada, particularly of those found on the remote shores of Lake Superior, was amongst the first that ever visited the *Mountains of Hull*. He was induced to do so, by being told by *Theodore Davis*, the Surveyor, who laid out the township, that when running his concession lines amongst these hills, the *needle of the compass* would not traverse. Hence, the learned Doctor conceived that iron must there exist, which he found in the greatest plenty. I have a piece of native iron ore from these mountains, and curious specimens of felspar.

FALLS OF NIAGARA.

THIS wonderful scene I visited on the evening of the 19th March, 1827, and for a couple of days afterwards. I have brought to England specimens of the rocky ledge over which the great river descends: it is a crumbling blue limestone. After severe frosts it is ever detaching itself from the mass which flanks the falls, and somewhat endangers the clambering beneath the projecting brow in the thawing season. A plumb-bob, let down from the limestone shelf at the edge of the *surface waters* of the falls to the rubbish of crumbled limestone below, was 111 feet; and from thence to the still water below the cauldron, the difference of level is 38 feet; which makes in all, 149 feet; and if the inverted curve of the cauldron, and convexity of the descending cascade, with the variations created by floods, be

taken into account, I should suspect that the great Falls of Niagara, at a medium, are the above-mentioned number of feet, although my friends the Americans will have it five feet less. The weather was *bitterly cold*, my fingers would not do their duty to work my instruments, or I should have settled this dispute to half an inch. Poets see these falls with different eyes from other people: Mathematics must be looked to in giving their real dimensions. I went full 50 yards beneath the falls, between the waters and the limestone ledge over which they roll.

These enormous falls are evidently working up stream: as the banks of the river beneath them have every appearance to prove that they have been acted upon, in times gone by, in the same way as those at present are which are influenced by the cataract. It also seems clear to me, that if they do thus back up stream, they must increase in height; as the present rapids between them and Lake Erie, make up a height of near 63 feet: consequently, when the falls begin to affect the smooth bosom of the lake, they will then be 212 feet in height—a circumstance not likely to take place for 3000 years to come; and when this comes to pass, the falls will begin, of course, to decrease in height, Lake

Erie to shallow, and the Rapids of St. Clair to increase in velocity. In course of time, then, Lake Erie will become annihilated, resolving itself into a part of the river Niagara; while the great falls will probably change their ancient name to that of St. Clair. From this train of reasoning, then, we may infer, that if the world holds out to a great age, beyond the reach of numeration, the falls will ultimately arrive at St. Mary's: so that science may prophesy that the wonderful Lakes of Canada may dwindle into the channel of a river, and the roaring of the huge waterfall be heard no more.

The Americans make a great boast of having proposed the daring plan of *tapping* Lake Erie, as they say, to feed their great canal; but if the time arrives when the Falls of Niagara shall work back in their horse-shoe mode so as to affect the level of the lake, the water in their canal will likewise become affected, and as the lake keeps sinking, they must keep re-constructing, until they find themselves baffled to *tap* Lake Erie.

Their engineers then will not think of changing the course of the St. Lawrence—a thought which they indulged in, until they lately found it would return to Lake Ontario, by the Vale, I suspect, of the Tanawanta; they may, however, continue to

tap the Michigan, and even Lake Superior, if they have a mind.

The reason why all waterfalls grind down their channels in a horse-shoe form, seems quite obvious : in the middle of all rapid running rivers, generally speaking, the water is deepest ; consequently, when it has to roll with fury over a perpendicular ledge of rock, the edges of that ledge will be ground away in proportion to the mass of waters that are thundering over it ; and there being more at the middle than there is towards the sides, the ledge of rock in the middle grinds faster than the rest, and so the horse-shoe figure is formed.

With respect to the noise of the Falls of Niagara, I have said somewhere, that it is not deafening, nor is it disagreeable ; yet, however difficult to explain, it is not a dashing roar, like that which a stormy ocean emits by its surges on a rocky shore ; nor is it at all of a thundery nature, as when electric clouds battle over-head in the sky. Could I compare it to any thing but itself that I have ever heard, I would say that if a quantity of large round stones, of from two to five tons each, were tumbled from a huge precipice into waters of profound depth, and this hurling trade continued for a time, we should hear some-

thing like the awful and hollow plunging voice of the falls. According to the state of the atmosphere, so is their noise carried. When the weather has been frosty for a time, and a thaw about to ensue, the sound then extends to the greatest distance; which sound, I have been told, has been heard at York, the capital of Upper Canada, which must be upwards of fifty miles from the falls in a straight line; and what is a little curious, when the sound is at its loudest, it is heard to the greatest advantage, (that is to say, on its highest key,) about twelve or fifteen miles from the falls. In soft, thawing weather, the sound is hardly heard at the Visiting Hotel, situated on the rising ground beside them. It is quite confined to the dreadful gulf in which it is engendered.

In frosty weather, too, the smoke-spray rises from them in the greatest clouds, and hence may be seen at the farthest distance off. As to their powers of suction in dragging birds of the air into the vortex, it is not a very correct opinion. I think a healthy bird might fly across the falls with the greatest safety, even within a few inches of the surface; but woe to them if they be caught by the cataract! they will never certainly fly more.

There is a story told of an old squaw, who came over the falls alive: I do not doubt this; the

danger does not seem to arise from the percussion of the waters, but from being smothered in the froth and spume of the cauldron, or kept too long beneath the water by the force of the current. There were eight raftsmen once came over the Falls of Chaudiere, Ottawa River, which are about thirty feet high. They were all drowned but one, and he complained more of the *froth*, that had almost suffocated him, than of any thing else.

About a mile from the falls is a singular phosphoric burning spring, the water of which, if passed through a gun-barrel tube, will burn like a candle. There is also a curious cave in the neighbourhood, in which if water be laid during the warmest day of summer, I have been told it will *turn to ice*. This may seem too much for us to believe; however, if others do so—men much to be trusted—why should we be backward in doing so likewise?

The following letter from York, Upper Canada, to one of my friends in Montreal, after visiting the falls, may probably be the freshest account of them that I can give.

York, U. C. 28th March, 1827.

“DEAR SAUNDERS,

“HERE am I, fairly bogged at last. Neither steamer, waggon, sleigh, nor birch canoe, is in

motion, so I must remain for a time in *statu quo* likewise. The icy lakes are just breaking up, the *corduroy* bridges afloat, and all promenades about three feet deep in mud.

“My trip to the falls has been pleasant, and not without a sprinkling of incident. Coming up from Montreal, admiring the Rapids of the St. Lawrence, and somewhat blaming in my own mind the *learned astronomers* who have given its noble channel to the Americans,—who should look over my shoulder, and break off a disagreeable reverie, but our friend B. F.? He had just got married to some Cornish girl, was keeping himself mellow, and enjoying life deliciously. He had courted her in the space of three days, and boasted he had less trouble in gaining her affections, than in getting a priest conveniently to cement the business.

“On passing *Barnhart's Island*, I felt old reflections returning. They have read the stars with a witness! quoth I to myself. They have brought profound knowledge from the *celestials* with their telescopes,

‘Search’d the planets and the moon,
For thief in thimble, thief in spoon,’

as doughty Hudibras has it. There will be a tax on the navigation of the noble river directly.

Jonathan will fill his coffers therefrom, and laugh at John Bull's simplicity as long as he lives.

"We got *into the ice*, as the saying is, in crossing the bay of Quinty in a covered sleigh, by which accident a poor horse had nearly been drowned, but was restored to animation again, to the great delight of the driver, who had *choked* the brute to save it, as is the common practice in such emergencies. I got out of this scrape with a sprained ankle, thankful it was not worse.

"I had a good companion a part of the way, a young Irishman, who had gone to the "North West," when a boy, on the business of the late Company of that name, and after remaining there for six years, had returned to the civilized side of Canada, and turned storekeeper. He had a good *box of Segars* with him, and kept smoking the whole way. We had many events discussed, and talked of the Hudson's Bay Company. Athabaska, the mouth of the Columbia, and the Rocky Mountains had been particularly explored and examined by this wanderer. He told me that there was an old man, of the name of *Harris*, living on the shore of the Bay of Quinty, who knew of the *rich Silver Mine* on the Trent. He was told of it by the Indians, dug ore out of it in large quantities, and got some Americans to start

a *Mint* on the account ; but after coining for some time they quarrelled, as Harris would not divulge the secret of the spot where he found the lode. I have this matter farther to investigate.

“On getting to Port Hope I was ushered into a room where about twenty young Canadians were *raffling* away with dice for a *musical snuff-box*. The box was placed on a table in the centre, playing tunes, and was looked at with wonder, as if *fairy fiddlers* led the concert in the interior of the *mull*.—Here I found the best public-house on all the road, and booked it for excellency in *bacon, eggs, and gin*. The waiters are *females*, fat and plump, and wear snow-white aprons. Wherever I find females the *waiters* in the inns, I always find a good house ; but when a *sallow-faced Jonathan* pops his long chin in my face, I dread future annoyance. Can’t they turn out and look after their farms and their lumber, and leave their houses to the management of their wives and daughters ?—But it is needless to preach or offer advice ; all the world are philosophers now-a-days, and Tom-cats have become eminent in metaphysics and profound thinking.

“To be short though, I got to the falls waggon-borne. It was evening when we drove up to the hotel, so we hurried down the brow to the scene.

The landlord proposed coming with me, to *show me them* to the greatest advantage, and to make me look to the right and then to the left, like the keeper of a house-full of wild beasts ; but I desired him to keep at home. The *falls*, I suspected, were able to *show* themselves.

“ Now you expect a description beyond the poetic quill of Howison or statistical one of Gourlay ; but this, my good fellow, I cannot do. You must come and see them with your own eyes. They are certainly sublime, awful and beautiful beyond my highest expectations. Think of the great St. Lawrence coming over a precipice of 150 feet, divided in the middle by Goat island ! More than one half of the water rolls down on the Canada side of the island, the rest on the American ; both falls are nearly one height. The grand *horse-shoe* fall is that on the Canadian side. The noise is deafening but not disagreeable, and the smoking *spume*, though it obscures the bottom and hinders the eye from penetrating into the awful cauldron, makes the whole more awfully beautiful. Look at them every day in the year, and every hour of the day, and new scenes will present themselves. Sometimes the noise lulls—sometimes the spray is full of rainbows and haloes. The waters at times seem green, and the next instant they are black. The

frost adorns them with fringing icicles and furbelows of snow, while the sun paints them with streaks and circles of coloured light. Though I were a Milton, they would laugh at my muse; and being only a very humble individual, of course it is high presumption for me to speak; but triflers must be gabbling.

“As I examined, I could not but reflect on the numbers of mankind who have wandered far to see this wonderful spectacle, and of the far greater numbers who have heard of the falls but have not been so fortunate as to have seen them. I then considered myself extremely lucky, and said, this was well worth leaving Britain for: for this, what is a voyage o’er the broad Atlantic?

“I went down *Jacob’s ladder*, a ladder which hangs from the ledge of the table rock over which the waters fall, and after descending about two hundred steps found myself at the bottom of the falls. Now for ye! I looked upon the face of the descending element. I crept along by the side of the limestone precipice and looked through the foaming surge into the cauldron itself. Heavens! Not yet satisfied, I got in between the falls and the precipice, and looked through the descending torrent. Speak not of

thrones and happiness! could a soul at that moment be more happy than I was? I was alone! I was curtained by the falls of Niagara! Nature in her greatness was before me, in a majesty of splendour! Could I then think of any thing else than her Author, my own insignificance, and the trust to repose in him through time and eternity?

“There may be a possibility of getting round the shoe between the falls and the rock, but not in winter, as I persevered until I was fairly obliged to put about, in consequence of masses of ice which effectually blocked up the way. If I am at them in summer, I shall try the experiment.

“Returning towards the ladder, I espied a duck, which had been swept over the falls; she was *alive*, but seemingly more than three-fourths dead: from her I inferred, that if one hundred good swimmers, such as the surf gamblers of the South Sea Isles, were to be swept over, one fourth of them would come out alive. Had Lord Byron been with me, I dare say he would have attempted it and made a *coward* of me, for I should not have liked to accompany him.

“Waggon-borne, once more I reached Hamilton and Dundas, and there met many of my old friends whom I had not seen for seven years: they were

comfortable, had got wives, and some of them a child or two. At the latter place, I met my notable worthy friend Dr. D. on his way, like Romulus of old, to lay the foundation of the great city of the Canada company, to be called the *City of Guelph*, in honour of our illustrious Royal Family. The Doctor and I, as usual, cracked our joke, shot ducks in *Coot's Paradise* from Burlington heights, and explored and examined the whole surrounding country.

“ In this neighbourhood I fell in with Captain Brant, the famous Indian Chief of the Mohawk nation. He is about thirty years of age, straight as a rush, about six feet three inches high, of strong make and interesting countenance. In truth, I have not met a more polite gentleman or a better scholar in all Canada. I went with him to his house : all there was neat and comfortable ; three nights did I sleep beneath his roof, and never slept more soundly. Well knew I the noble worth and independence of my protector—if you cannot trust an *Indian Chief*, you can trust no other being on earth—not a hair of my head could be disturbed there. His mother yet lives, and he has a sister married to a young Scotchman. She is a sweet interesting female. Some mean scoundrels, the spawn of infamy, thought the chief capa-

ble of murdering an American named Morgan!—
What baseness!

“Well, it is curious, and will you believe me? that the most beautiful girl I have hitherto seen in this country is from the States. What a Venus! I saw her in a small inn away in the wilds of Ancaster; but she being a rigid Methodist, and surrounded by disagreeable relations, prevented me from speaking of love: however, I am glad to find there are such creatures in existence; when we meet, I shall tell you more of it. The Falls of Niagara may be all well enough, may inspire us with wonder and astonishment, but a sweet girl may do much more. When the question was put in the forum of Edinburgh, respecting the ‘objects of nature in heaven above and earth beneath,’—which were likely to fill man with the greatest awe? ‘Those in the heavens,’ quoth one of the speakers, ‘for there is the sun and the stars.’ ‘No, no,’ replied another, ‘they are not so awful as the stormy ocean or the Falls of Niagara.’ ‘You are both wrong,’ cried out a Galloway Poet in the gallery,—‘there’s nought in heaven abon or earth below can half match—Nelly Burnside.’

“ADIEU.”

RIVER ST. LAWRENCE AND BARNHART'S ISLAND.

ALL people know that this is one of the largest rivers in the world, that its sources are the large lakes of Canada, and that it discharges itself into the ocean by a great gulf of the same name ; but there are many other things connected with it not so well known. At Barnhart's Island, which lies in it, about half-way distance between Montreal and Lake Ontario, we have given up the channel of the river to the Americans, and, of course, are no longer the owners of the noble stream. *Barnhart*, the person who made a purchase of the island from the Provincial Government of Canada, had to repurchase it, as I am told, after the *boundary line* was drawn against him. The words of the treaty, by which we have lost this valuable property, are represented to me as follows :—"That the St. Lawrence, above Montreal,

and all the Lakes, should be equally divided between Great Britain and the United States; and that if any islands occurred in the line of division, we should take and give time about." The consequence was, that this island, which is in a narrow place of the river, fell to the share of Jonathan, and, as the grand channel of the St. Lawrence flows between it and the State's side, of course, he commands the whole river. I have heard it said again, by some of those who were employed in laying out this *boundary line*, that they were instructed by the treaty to *divide the waters* of the St. Lawrence equally between the parties, and pay no attention to the islands that might intervene. If such was the case, Jonathan has, in this instance, come in for the greatest half; as on his side of the island it is the deepest, widest, and, in fact, the only channel of the river good for commerce. But what sets the matter at rest seems to be his laying claim to both Barnhart's Island and the Channel. It is not right in me to state positively an opinion on this very serious matter, as I neither know the exact terms of the treaty, nor any of the causes that actuated the layers-out of the boundary line at this place to do as they have done: nevertheless I must say, "that honest John Bull seems to have been gulled at this

Island, and millions will not repair the loss he has here sustained." Perhaps he meant to act with this kindness and liberality ; if so, it is none of my business ; but one thing seems certain, that if such has been the case, he has done for the Americans, what they will never do for him. A river such as the St. Lawrence is not to be had every day ; its value seems to be inestimable. It was along the banks of this great river that the Military Canal, which now comes by way of the Rideau to the Lakes, was first proposed to be constructed. But *shun the frontier* was the cry ; fly into the interior of the country with canals, and so be out of the way of the enemy. It is not for me to decide on this matter, not being a military man ; but I humbly think that a canal may be as easily defended on the frontier as any where else, as there are the forces assembled and watches stationed.

Along the beautiful banks of this mighty stream the Americans build themselves beautiful villages ; whereas the Canadians are inclined to creep into the interior, or rather they are wrongly advised to do so. Jonathan does not shun the *frontier* ; he has no such fear about him ; he is always advancing, while we seem disposed to retreat. There is something in this conduct of ours, desti-

tute of bravery. "Make a stand; what have ye to fear?" this I have often said to the natives of the banks. "Did not ye beat them on Cryzler's Farm, and cannot ye do it again, when there is any necessity?"

Lake Ontario is 220 feet above the level of the ocean; consequently there must be (as there are) great rapids in the St. Lawrence, foaming and bounding along, like a troop of white horses charging in battle. The scene is terrific, when raftsmen are running them with their timber, or those mercantile barks called *Durham boats*. I have seen them flying down the rapids with 500 barrels of flour aboard:—how steady have the pilots to keep the channel!—sometimes one yard astray from the track would send all to desolation.

In coming up the river how do matters change! yet in so doing the eddies assist, more than strangers can possibly suppose. Whenever a headland extends out into the river, the rapids strike against it, and recoil along one of the banks; so that when the horses, oxen, and men have hauled their boat round one of those headlands, they will bear up as it were against the current. There are a class of people living on the banks, called *Forwarders*: these have the care of conducting goods and chattels up the river. I think it not impossible but

that the navigation of any rapid running river may be much improved by paying particular attention to the construction of headlands, that might deflect proper eddies: this matter has yet to be properly studied, and who knows but it may do away with canals in a wild country almost altogether? The Rapids themselves, as it were, if properly managed, might act as engines to propel floating bodies to move in a contrary direction.

Messrs. Clowes and Rykert, Civil Engineers, examined the nature of the channels of the St. Lawrence about Barnhart's Island, for the Provincial Government of Upper Canada, in the summer of 1826, and reported as follows :—

“ Having been particularly directed to ascertain the situation of the channel on the *north* side of Barnhart's Island, we devoted some time to that purpose. We found, however, upon due examination, that all endeavours to render that channel practicable for the transportation of lumber, and other produce from the upper country, must ultimately prove abortive, there being no possibility of approaching it with safety in descending the river, on account of its immediate connexion with the principal rapid of the *Long Sault*, where no vessels or rafts can ever attempt to descend. The channel along the *north* side of the island is much

contracted and very shoal, without water sufficient to *float* a loaded boat of the ordinary size. But, inasmuch as it is not capable of access at the head, we abandoned *all ideas* of making improvements on any other *part* of that channel. Besides, it might probably be questioned whether we have the *right* of such improvement, since it cannot be done without interfering with the *island*, which is *unfortunately* claimed by another Government. At the *Mill Roche*, a little above the confluence of the two streams that form *Sheek's Island*, we propose to construct a *waste weir* across the *north branch*, in order to raise a sufficient depth of water, and entirely *abandon* the river to *Cornwall Bay*, a distance of five miles, with the canal. The navigation to the *foot* of *Barnhart's Island* being almost exclusively claimed by the *State of New York*, and the remaining part to *Cornwall* being obstructed by shoals and rapids, we deemed it inexpedient to attempt *any improvement* in the natural stream, but make an entire canal on *our shore*, for which the situation is well adapted."

I examined this island for my own information, and the St. Lawrence at this place in the spring of 1827. *Mr. Rykert*, the gentleman lately mentioned, was kind enough to accompany me; and I found myself obliged to coincide in opinion with

what has just been stated. The United States, by having *Barnhart's Island*, have also, then, the *St. Lawrence*, above Montreal. If then they have any part of this great river between the lakes and the ocean, they have the river in full; for they have then the power to regulate the transport as they please, and impose whatever *taxation* they may out of their *kindness* conceive to be proper; and woe be to those who must bear its effects!

“The line of intercourse down the *St. Lawrence* being 64 miles shorter, and having at least 350 feet less lockage,” (say the above engineers,) “than the route by the Rideau Canal, from Lake Ontario to the *still* water at Montreal, must, consequently, have more advantages.” This statement is not quite correct, as the length of way by the Rideau Canal is nearly 280 miles, and that by the other 180, making a difference of 100, which is 46 miles more than they give; and lockage being about 520 feet the one way, and 220 the other, the difference is only 300 feet instead of 350 feet; which, consequently, is fifty feet less lockage than reported.

A canal would not be easily constructed down the *St. Lawrence*; the cutting would be very considerable, and the natural waters at the *rapids*, independent of the *Barnhart Island* affair, would

always have to be avoided,—as a *large river* cannot be dammed as we do the smaller. The St. Lawrence might be *raised* by a *dam*, but it would be an enormous undertaking; whereas such as the Rideau River may be very easily managed that way. The *smaller the river*, the more easily is it made *navigable*. The *brook* coming hurling down a *valley*, may soon be checked, and throw the said valley into an extensive *lake*. Nevertheless, this river will yet be canalled, as it certainly deserves it under every aspect and consideration.

From Montreal to Kingston, Lake Ontario, about 180 miles, the expense of transport is 4*l.* per ton; from thence to Niagara, about 250 miles, it is only 2*l.* per ton,—the latter being along a lake, the former being up a chain of frightful rapids. It is not the fall of these in feet, that makes them thus terrific; but the great quantity of water that is rushing down. Thus we can run a rapid of the Rideau River with a birch-bark canoe heavily laden, having a *fall* of forty *feet* in a *mile*; but not one of the St. Lawrence or Ottawa, if it have this *fall*, unless the distance or run of the inclined plane be about ten miles. Hence the St. Lawrence is about 100 times as large as the Rideau, if the *square* of the distance bears that proportion to the *velo-*

city which science assigns it, and which *practice* says is *much* more.

I shall, however, let the engineers who surveyed it for the Provincial Government, speak in their own words. They levelled and examined it with considerable care, from *St. Johnstown* to Cornwall, a distance of thirty-eight miles, the fall of the waters being about 74 feet, and laid out two canals of different dimensions: The first 8 feet in depth, 60 feet at bottom the width, 84 feet at surface of water, the banks to slope one foot and a half to one perpendicular, the locks 132 feet long, and 40 feet wide, with turning bridges 40 feet in the clear, and 10 feet wide.

The second 4 feet in depth, 26 feet in width at the bottom, and 38 feet at the surface of the water, the banks to slope the same as the first. The locks to be 100 feet in length, and 15 feet in width, with turning bridges 15 feet in the clear, and 10 feet wide.

“From Johnstown to the head of the Galloup Rapid, a distance of four miles, the river is well adapted to steam-boat navigation. It will be necessary, however, to form a towing-path on the banks of the small canal.

“At the head of the Galloup Rapid we leave the river for a distance of forty-four chains. The

cutting runs above our level. The situation being, however, favourable, as the whole of the excavation may be deposited in the river, we purpose contracting the bottom width of the large canal to forty feet, and that of the small to seventeen feet in this place; by which means a great saving will be made,—the distance being so short that boats will have no occasion to meet on the canal; besides, those descending will naturally take the river, which is practicable in going down. Lock No. 1, of four feet six inches lift, will be required in both, where the canal will descend into the river at the foot of the rapid.

“ From the foot of the Galloup Rapid the river is navigable to Point Cardinal, a distance of 135 chains: all that will be required is the formation of a towing-path along the bank, and deepening some shoals for the boat canal.

“ At Point Cardinal we again leave the river for a distance of twenty-five chains. The cutting runs considerably above the level; the nature of the excavation is loam and large loose rocks. Here we again contract the bottom width of both, as at the Galloup Rapid. Lock No. 2, of two feet six inches lift, will be required in each to connect the canal with the river at the foot of the rapid.

“ From Point Cardinal to the head of the Rapid-

Plat, a distance of eleven miles, the river is well adapted to steam-boat navigation. No expense will therefore occur in the distance of the eight-foot canal. Some excavation, and Lock No. 3, of two feet six inches in lift, will be necessary, in making a boat navigation at Shaver's Island. A towing-path, bridges, and deepening several shoals will also be necessary.

“ At the Rapid-Plat we again forsake the river, a distance of two miles fifty-six chains. Vessels may descend these rapids with safety ; but being impracticable to ascend, a canal will be necessary to assist them on their way up only, which enables us again to contract the bottom width, as at the upper rapid, and avoid an immense quantity of deep excavation.

“ In the first mile the cutting is from ten to twenty-nine feet. Thence, in the next half-mile it descends to twelve feet ; after which it rises again, gradually, to thirty feet, and continues above the level to the end. One lock will be required in each to connect the canal with the river below the rapid ;—Lock No. 3, in estimate No. 1, and Lock No. 4, in estimate No. 2, being a lift of nine feet eight inches. Two road bridges will also be required.

“ From the foot of the Rapid-Plat to Point

Avoyon, a distance of eleven miles, we adopt the natural channel. A towing-path and deepening shoals will be required for the four-foot canal.

“ At Point Avoyon we quit the river for a distance of sixty-four chains. The situation is favourable. As at the upper rapids, we contract the bottom width of the canal. The line being near the margin of the river, the earth may be deposited in the water. Lock No. 4 will be required in estimate No. 1, and Lock No. 5 in No. 2, being a lift of three feet six inches.

“ From thence to Doctor Archibald's Point, a distance of three miles and a quarter, we adopt the natural channel. No expense will therefore occur in the eight-feet canal. The formation of a towing-path and some bridging will be required for the four-feet canal.

“ From Doctor Archibald's Point, we leave the river for a distance of three miles and seventy-two chains, to pass the Long Sault Rapid. From the place of departure to Hoople's Creek is forty chains, chiefly through low and favourable cutting. Thence we ascend the creek sixty chains, in the first half of which very little expense will be incurred, being a wide sluggish stream, with an average depth of seven feet water. The remaining half will require deepening, the average depth of

water being from four to five feet. A towing-path will be necessary along the bank of the four-foot canal. From Hoople's Creek the line runs through low and favourable cutting of black soil and clay about two miles; then it drops into a wide and deep ravine, which continues to Brownell's Bay, the place of entrance. Three locks will be required in each, Nos. 5 and 6, each six feet lift, and No. 7, of six feet six inches, in the eight-foot canal; and Locks Nos. 6, 7, and 8, in the four-foot canal, the lifts being the same. Three road-bridges, and one towing-path bridge will also be required.

“ From Brownell's Bay we propose adopting the natural stream to the head of Mill Roche Rapid, distance three miles. A little rock excavation will be unavoidable in the eight-foot canal at Moulinette Rapid. A towing-path and bridges will be required in the four-foot canal.

“ From the head of Mille Roche to Cornwall Bay, a distance of 5 miles and 22 chains, we entirely abandoned the river; it is therefore proposed to construct a permanent waste weir across the stream, and raise the water 13 feet perpendicularly, the situation being very suitable for that purpose. By this means we gain a depth of 4 feet water in Brownell's Bay, and save the expense of deepening the natural bed all the way down, ex-

cept a little at Moulinette; and by raising the water 13 feet at Mille Roche, we also avoid the expense of 13 feet in the depth of excavation, the whole distance to Cornwall. Besides, it will guard the canal against fluctuations in the river, and conduct all the surplus water down the natural channel, which being at command, will be eminently useful for hydraulic purposes. In the first two miles the cutting seems considerably above our level. The nature of the excavation in the first mile is loam and clay mixed, with loose stones; the second mile is chiefly clay. Thence the cutting is favourable, except about 20 chains near the termination, where the line crosses a high stony ridge. Three embankments will be necessary in the above distance. A little under-water excavation will be required in the Bay for a distance of two chains, averaging 3 feet cutting across a bar directly opposite the entrance of the canal. Four locks will be required, Nos. 8, 9, 10 and 11, in the eight feet, and Nos. 9, 10, 11 and 12 in the four-feet canal, the lifts being each 7 feet 6 inches. Seven road and two towing-path bridges, will also be required.

“The first or largest canal will cost 176,378*l.* 8*s.* 5*d.* and the other 92,834*l.* 1*s.* 11½*d.*”

Thus it appears that a safe and permanent line

of navigation down the River St. Lawrence to Cornwall, for vessels capable of navigating the Lakes, may be effected at an expense absolutely trifling, when compared with the many advantages to be derived from an improvement of this nature.

The above sums are considered sufficient to complete the work; yet we are aware that in an undertaking like this, unforeseen obstacles often present themselves in the progress of the work, and being generally of a contingent nature, it is impossible to ascertain or calculate them actually, even by the most minute surveys.

A question will naturally arise that will admit of some discussion, as to which of the above scales it would be most expedient to adopt; but, upon due reflection upon the comparative advantages and the local situation of the country, we feel decidedly in favour of the largest, being designed both for steam-boat navigation and schooner navigation. One inducement for giving a preference to this scale, as one of primary importance, is, the advantages that would accrue to the trade of the Western Districts from the practicability of passing through the canal with such vessels as are suitable to the navigation of the Upper Lakes. By making it of corresponding dimensions with the Welland Canal, already so far

advanced towards completion, it would, in connexion with that work, not only facilitate and expedite transportation, but save a vast expense and inconvenience in breaking bulk and transferring cargoes from one kind of vessel to another, subjecting goods to injury, already too frequently experienced by the existing mode of transportation.

We must express our regret, however, that having not been authorised to extend our survey beyond the boundary line of this Province, we are not enabled to give a full and satisfactory statement of the practicability and probable expense of effecting a safe navigation throughout, without which, the principal object of our enterprise will be but in part attained.

We feel sanguine, nevertheless, that upon proper representation, Lower Canada will come forward with alacrity to unite with us in support of an improvement enhancing their own commercial interests equally with ours. Of this they are no doubt sensible, and will, therefore, be more ready to co-operate in an undertaking which, without their aid and concurrence, can never be fully accomplished. The Cedar Rapid and Cascades, although serious obstructions in the present navigation, offer (as we are informed) great facilities for improvement.

Then by making the necessary alterations in the Lachine Canal, we should open a direct and uninterrupted navigation from one extremity of the Provinces to the other, and might cheerfully anticipate the time as not far distant, when vessels of burden would be enabled to pass and repass from Quebec to the most western settlements of this Province.

In taking a nearer view of the objects of this contemplated improvement in the navigation, we would beg leave to suggest the great propriety of making a canal for steam-boat navigation; for by steam-boats we anticipate the greater part of our trade will eventually be carried on;—safety and expedition in the transit of goods being two essential requisites in commercial economy.

Steam-boats will, therefore, always have a decided advantage. Besides, after passing through the canal at the several rapids, they will seek their way up the channel of the river without any interruption, requiring neither towing-path nor any other extra expense to assist them on their passage up. Whereas sloops and schooners depending entirely on canvass must, in case of contrary winds or calm weather, be unavoidably detained or depend upon towing.

In this case a towing-path and bridges would

require to be constructed upon the banks, the whole course of the river. A channel would also have to be cut through shoals in many places of great length; and after all, an insurmountable difficulty would present itself upon their arrival at Kingston, and cause delays, provided they were destined for the Upper Settlements.

The same objection, as it respects the formation of a towing-path, bridges, and cutting a channel along the shore, is also applicable to boats, though in a less degree.

A canal upon the scale recommended would also be of great advantage to the lumber trade; by making the locks 40 feet wide as proposed, rafts, &c. of the ordinary size might pass through with ease and safety, avoiding the expense of pilots, as well as the danger in running over the rapids.

It has hitherto been argued, that steam-boats are injurious to canals, and should therefore not be admitted; but the fallacy of this argument, we believe, has been fully demonstrated in Europe. At all events we feel convinced that it can only apply to canals of small dimensions.

It is highly gratifying to us, to be enabled to state, for the information of your Excellency and others, that the natural advantages for the improvement of the navigation of the River St. Law-

rence, are such in general as far exceed our most sanguine anticipations.

The Long Sault, which has been thought an almost insurmountable barrier in the navigation, possesses uncommon facilities for canal operations. The only place on the whole route that will be attended with any particular inconvenience is at the Rapid Plat ; the lands adjacent to the river lie very high, and will cause some deep excavation, which it is impossible to avoid.

It has been suggested that the navigation of the River St. Lawrence might be sufficiently improved by deepening the natural bed, constructing locks, &c. and thus supersede the receipts and expense of canals. We feel conscious, however, from actual survey, and due reflection, that such opinions could only originate with persons who have not properly examined the nature of the different situations ; or, at least, they cannot be fully aware of the expense and inconvenience that must naturally attend an attempt to effect a channel capable of passing vessels down those rapids where the work would be constantly exposed to interruptions by the water. Partial improvements can probably be made, that would materially assist the passage of boats ; but the only effectual method of making a safe channel for vessels of

burden, is to cut canals where the river cannot interfere. It will be seen, however, that we propose to adopt the natural channel where it appears practicable. The distance from Johnstown to Cornwall, by the river, is about forty-seven miles, and the total fall ninety-five feet. It may not be unworthy of remark, that thirteen miles of excavation, and eleven locks, averaging six-feet lifts, is all that will be required (having neither aqueduct or culvert) to effect a complete line of navigation the whole of the above distance. All the rapids above the Long Sault are practicable. In going down, vessels will of course prefer the natural channel, being more expeditious and less expensive. It is those ascending only, that will require the canal, which allows us to contract the width of those places, and greatly reduce the expense.

It would be impossible for us, at this moment, to anticipate the innumerable advantages that must naturally result from an enterprise like this; neither do we consider it necessary to point out the importance of opening such a line of communication for advancing the prosperity of this country; for if we look back to Europe, and even to the State of New York, we see the fact fully demonstrated.

With such salutary examples before us, it is to be hoped, that every individual acquainted with the geography of our country, and the advantages which the hand of Nature has so liberally bestowed upon us, is fully convinced of the profits it would secure to the trade of these Colonies. We shall therefore only attempt to point out a few leading facts immediately connected with our commercial interest.

The St. Lawrence being the shortest and most direct line of communication with the Atlantic, will, by removing a few natural obstructions, ever be the highway for commerce, notwithstanding improvements in any other quarter.

The Rideau Canal, if carried into effect upon the plan suggested, will be a most stupendous work, and will, in time of war, be of infinite importance to the security of this Province; being in the interior, it will form a safe dépôt and open an independent line of communication through the country completely out of reach of the enemy. It will not only be eminently useful in a military point of view, but it will also open an outlet to a large extent of fertile country, hitherto nearly excluded from the market, and materially facilitate the transport of lumber from immense forests, now one of the chief sources of trade.

Besides, if accomplished by the Imperial Government, (without the aid of the Provincial fund,) as at present contemplated, it will cause a large amount of capital to be brought into and expended in the Colonies, which will render it the more desirable. But, as it respects our commercial interest in general, the St. Lawrence is an object of primary importance, and which should naturally first occupy the attention of our Legislature; as the particular object in expending money on canals is to facilitate and expedite the transportation of our commodities to market. No route, we believe, possesses equal natural advantages with the one now in contemplation; being the shortest, it will always enable forwarding merchants to transport goods much cheaper and quicker than by any other line, and it is reasonable to suppose that commerce will find its way by the shortest and cheapest route.

Another important advantage worthy of notice in this work, is the many valuable sites that will be obtained for mills and machinery; as there is not a durable stream of water from Kingston to Lower Canada on our side, except the Gananoque, capable of turning mills for manufacturing the quantity of flour necessary for home consumption,—an inconvenience severely felt by the inha-

bitants of a large tract of country, which, for the growth of wheat, is not surpassed by any other part of the province. Among the few mills occasionally in operation, not one of them (save on the stream above alluded to) is capable of making good merchantable flour for market ; and owing to the fluctuations of the water in the river during the summer, and the accumulation of ice in the winter, they become so limited in their operations that farmers are frequently compelled to go from forty to fifty miles and cross into the United States to get grinding done, and then (unless they smuggle) their grain is subject to duty in crossing the lines.

Mills and machinery, to any necessary extent, may be erected at Mill Roche, Cornwall, and at the foot of most rapids, where the canal will descend by means of locks, and where there will be an inexhaustible supply of water at all seasons completely at command, without materially interfering with the navigation.

This, among many others, is an object that will not be the least to stimulate the trade and agriculture of this rising Colony.

Our present shackled mode of conveyance up the St. Lawrence causes a very serious impediment to the trade of our upper districts ; the enor-

mous rates of transportation amount almost to a prohibition of heavy articles. It excludes merchants, and others along the frontier, from a fair competition with their American neighbours. The easy access to the New York market by means of their canals, gives them a decided advantage over our trade; and except we effect similar improvements on our line of transit, a great proportion of the commerce of Upper Canada must necessarily seek a vent the same way, which will cause a constant drain of money from this province to the United States, and encourage smuggling (which no restriction can ever entirely suppress) to the injury of our revenue.

Now taking the Cascade and Lachine Rapids into account, which have been *locked* and *canalled*, I find still about eighty feet of Rapids remaining, or about 150,000*l.* worth of work to perform before the St. Lawrence can be made navigable; and judging from what I have found these gentlemen's *estimates* to turn out in practice, to canal the whole of this great river as that part of it at Lachine is done, will cost 560,000*l.*; for if ever such a work be undertaken, the situation is such that nothing but what is strong and substantial will answer.

OF DOGS.

How very numerous these are, and of all kinds ! the country swarms with them. When passing along with a sleigh in winter through a Canadian village, the dogs make after it in droves, and are often so bold as to catch the passengers by the plaids and swing after them. I once saw a driver of a sleigh dash at a large open-mouthed beagle with his whip ; the dog caught the cord between his teeth, and we had to pull him along about half a mile, to his seemingly great amusement : at last he let go, thanked us with a very significant *bow-wow*, and returned to the village. They will absolutely leap into the *carriole* sometimes, and frighten fine ladies out of their wits ; but when they are once in, they seem much inclined to get out, while the butt-end of the driver's whip rattles hard on their *hurdies*.

The Indian dogs are small prick-eared little fellows, not unlike some of the smaller English terriers; they are bred from a certain kind of fox, excellent at discovering *musk-rats* and alarming *beaver towns*. The hounds for hunting the deer out of woods into the rivers, are large brown-coloured animals; something between the setting spaniel and the mastiff. There are few dogs of real game in the country, as there are no partridges in the cleared parts; and a dog is of little use in the thick woods to sportsmen, for the birds keep not in coveys nor do they cower and hide themselves, but run about like pheasants, and hop amongst the thick branches.

Newfoundland dogs are rare to be met with, even on the island from whence they derive their name: they are chiefly found on the coast of Labrador: the settlers there obtain them from the Esquimaux. As dogs are so plentiful about the Canadian towns, of course they are not highly valued. The people have no work for them to do; they make no use of them amongst their flocks; and all the utility they seem to be of, is to assist the merry Canadians in keeping up the fun: the former laugh, and the latter bark, and they seem gratified with one another's polite attention. They ramble amongst the woods with them, and pursue

the squirrels : this is an excellent kind of diversion ; no fox-hunt ever drew forth more huzzas : yet there are nevertheless very few squirrels caught by them ; my little nimble chap scrambles up the tall pine, gets on to a lofty bough, cocks his tail, and derides the fools below.

In the extremes of the seasons, many of these dogs get mad. Every body knows a *mad-dog* in Canada, they are so common ; but there is one good thing attending them, that they do not *bite* or *snarl*, so much as the rabid animals of England : they are not greatly dreaded. The Canadians pelt them to death, more for fun than any thing else.

One Sunday morning, in the month of March 1827, I saw a mad-dog pelted to death by snowballs in the streets of Montreal. He was one of those large *Labradors*, somewhat expert at swimming and diving. It was astonishing to behold what a pelting he took from the mob before the life forsook him : hard lumps of frozen ice, which had accumulated about the sides of the houses, were thickly hurled upon him ; yet he continued to move, hobbling about from one side of the street to the other. His walk was very infirm, his limbs seemed to have lost their energy, he truly *waddled*, as the Scotch say, and generally kept his head towards the mob ; the same swinging on its

socket from side to side, mouth partly open, tongue hanging out at one side, and slavers hanging from it to the ground, like gossamers when sometimes struck by a shower of bullets. All at once, he would make, or rather attempt to make, a kind of leap upwards. He drooped much more behind than before, and seemed sometimes inclined to sit down on his hams. Thus he continued retreating backwards, until he got in between a couple of brick walls, where he died, and afterwards was tossed with sticks into the St. Lawrence, having given his destroyers a hard two hours' work, at least, to effect their humane purpose.

After coming out of the kirk, where I had been to hear a sermon preached, and a few psalms chanted, according to the ways of my fathers, I duly attended the deaths of two other mad-dogs which took place in the suburbs. They were of the cur and lurcher tribe, so more easy to be despatched than the former: the Canadians seemed to consider the business an amusement, being one that is very common amongst them. Perhaps it is not very generally known, that extreme cold is as favourable to the propagation of hydrophobia, as extreme heat; and that there are always as many rabid animals, or mad-dogs, in the depth of a Canadian winter, as in the utmost sultry days of

summer. The reason of this, and of every thing else, I may almost add, connected with this woe-ful and terrific distemper, seems involved in much mystery. That it may, and is produced by the effect of peculiar seasons, is perfectly obvious. There may be certain poisons and latent diseases lurking in dogs and other animals, men not even excepted, which may only require peculiar causes to rouse them into action, in the absence of all contagion whatever. Hydrophobia is generated amongst the canine race, and may be imparted by bite, or otherwise, to themselves and various other distinct species of animals; but whether to fish, fowl, or serpent, has not yet been shown. There is a species of madness not unlike this, an account of which I once transmitted to the following worthy character.

“ Dr. Abernethy.

“ You inform the world, in your valuable, humorous, and philosophic Lectures, that since first you became acquainted with medical science, a number of new diseases and disorders have beset the human frame, or have been discovered by men of eminence who had accidentally overlooked them heretofore. How far this is true, I know not, but am perfectly willing to subscribe to your opinion,

be that what it may, for I am no medical man, and therefore ought to believe those men who are, yourself being, in my estimation, at the head of your profession. There is a disorder, then, which I shall call the *Sailor's Madness*, which does not seem to have attracted the attention of the Medical World; in all the medical books, at least, which I have been so fortunate as to have a peep into, I have never found it mentioned.

“This madness is, in two respects, similar to hydrophobia, it is extremely violent and outrageous in its nature, of short duration from the appearance of the symptoms until death closes the melancholy scene, and as yet has been perfectly incurable. It has been my lot to see three cases, but I have heard of many more: they were all *captains* of merchantmen driven in by stress of weather to a small harbour on the coast of Britain. The first I saw had been extremely irritable for a day or two previous; the crew durst not speak nor look the way he was on. The symptoms getting worse, he grasped a large sail-knife by the lanyards, and pursued one of the apprentices over the rigging of the ship. The young sailor was wide awake to the intentions of his master, and ran up and down the shrouds with great agility; but the captain was equally nimble, and while the

poor lad was turning the cross-trees, the madman, on the opposite ladder, let dash at him with the knife, and cut one of his cheeks from brow to chin—a frightful gash. The sailors now interfered, and after much danger and difficulty succeeded in securing the captain with ropes; then he roared, kicked, and cursed, in a horrid manner, until the evening of the second day, when he died under a paroxysm of rage.—The second, while running into harbour, seemed struck with the appearance of a gentleman's house that had been built on a commanding station by the sea-side. 'Damned fine house!' he kept muttering to himself, until the ship was brought to anchor; when he ordered his apprentices, six in number, to proceed with him instantly ashore in the jolly-boat, and each to bring a rope with him five fathoms long. They obeyed, of course, as it is quite against all maritime law for apprentices to disobey the orders of their captain. On arriving ashore, he bade them follow him, as fast as they could, round the coast to the large house: they did so. On arriving there, which was about a mile and a half from the bay, he found, to his surprise, the door locked, and no persons moving about, the family being absent. The gardener's wife was left in charge, and she was at her own cottage in the garden at the

time. Finding this, with his bare fists he whacked in the panes of glass and window-frames, cutting his hands in a shocking manner. Having effected an opening, he jumped into the drawing-room, and bowled out of the window whatever of mahogany furniture came first to hand—chairs, tables, side-boards, &c. damning the apprentices to make up their burthens. The poor fellows, having each bound in his rope a lot of furniture, proceeded on the homeward march, followed by the stormy captain, groaning under a huge table, balancing it on his back with one hand, and carrying a large mirror in the other. Thus passing many people on the road, the neighbourhood became alarmed, the country people gathered round with sticks, and intercepted him when returning again to the house, and with much difficulty got him secured, and lodged in the county gaol; but getting more and more outrageous, the humane conceived that being in a prison was the cause, and they had him removed from thence into a private-house; but it made no difference, he expired in the same way as the other, perfectly smothered with rage.—The third seemed to decline robbery or murder; he wandered melancholy about the shore, and when any notice was taken of him, he gave utterance to wild imprecations. Sometimes he would take a stick and thrash

the ground, until he was quite exhausted, or hurl rocks off a precipice into the surge. This being in a remote part of the country, which was thinly inhabited, nobody molested him, or rather, none of the harmless sheep-farmers durst go near where he was. They kept hovering round at a distance, however, and as the distemper increased, they got more and more alarmed. At last he became more exhausted, and could not stand on his feet. Thus did he wear away much in the same way as the others did, although he was not handcuffed or molested by any one.

“ Some will argue that the *sailor's madness* proceeds from the persons afflicted having taken *grog* to excess: this is an error. Drinking improper quantities of spirits is certainly not a good thing for either mind or body; but let us not attach to that bad habit, greater evils than really belong to it,—and this distemper does not. Those beset with it, have always been accounted the most sober of all aboard ship. Young men of education and sensibility, when appointed to command, are apt to be over-anxious about their behaviour. They form resolutions to conduct themselves in such a manner, that no blame shall be laid to their charge. This is all very good, but these resolves should always be made with humble dependence on the de-

crees of a just Providence, which I am afraid they are not. A storm comes on, the wind becomes agitated, waves yawn, sails split, masts come down by the board, crew get mutinous, reefs lurk a-lee : such a scene requires a cool and deliberate judgment, to take things as they come like men, and ever hope for the best. How often do we hear and read of captains getting mad, and murdering their crews, after they have weathered tremendous storms ! How often do we meet captains a-shore of still, quiet habits, who rave and curse a-board, when the breeze begins to get troublesome ! The whole proceeds from the human mind struggling to be more than it is, disdaining consolation, and scorning to resign itself to the laws of Fate."

CANADIAN PECULIARITIES CONNECTED WITH
ART AND NATURE.

Basins.

IT has long been a proverbial saying, that "smooth water runs deep;" but how it contrives to do so, has not yet been sufficiently investigated. We should expect to find a deep basin in the course of a river continuing yearly to become shallower by the depositions of mud and other matters hurried into it by the current; whereas the very reverse is found to take place, and instead of filling up it gets deeper. If we fling a dam across a river, and uplift the waters so as to run over the dam, the basin thus formed will continue to enlarge; but if the waters be allowed to escape periodically, by means of a sluice, it will continue to fill up. We should also suppose, that if water-soaked trees, which can only swim far beneath the surface, and

rubbish of a similar gravity, were forced into such basins, they would surely continue to lie there, and decompose at their ease on the bottom. It is true, they will quietly lie there, and moulder away, or be eaten up with worms and other reptiles ; but such decomposed substances will not remain there: either they get lighter, or by some action of the water in the basin are lifted up, and are carried over the dam ; both causes seem to operate towards their removal. We are led to think that the enormous quantities of driftwood, floating swamps, rotten sticks, decayed rocks, soils of all kinds, &c. hurried into Lake Ontario annually, would conduce towards the formation of islands and shoals in the same ; but this does not take place ; the Lake continues to get deeper, and now its depth in many places is reported to be much below the level of the ocean, which is about 220 feet beneath its surface ; and as this our earth is considered to be cavernous, probably its waters towards the bottom commingle with those of the ocean. It vexed me that I never had it in my power to make the experiment, and ascertain if this great basin contained any *salt water* beneath the depth of difference of level as stated ; for as such water is heavier than that which is fresh, by about one pound in the cubic foot, some may imagine it

would remain below ; although, when we find bodies of a still more ponderous nature, conveyed from the bottom, we are led to conceive that it might be raised likewise.

In every lake, or basin, where waters are continually flowing in and out, the pressure creates considerable action along the whole surface of the bottom : the tendency is to force every thing that is there, either to the surface, or point of discharge : the undulation is of a revolving kind ; not as with the waves of the sea, rising and falling alternately, but pressing onwards at the same time in a warping body ; for the stream going out, is kept up by that coming in, although the distance between be 200, or any number of miles. I cannot therefore think that Lake Ontario has any connexion with the ocean as supposed, else we should find its waters throughout impregnated with marine salt ; and if it had, the waters would force their way out by the aperture to the ocean, on account of the difference of level. The unusual rise of its waters in some seasons, which observers state to be seven feet above what is common, seems to me to be only rationally accounted for by the absence of evaporation, and greater quantities of rain than generally prevail. Once in every *seven years*, it is said to rise thus ; but *seven*, like

three, is a number open to superstition, not to be always relied on ; and it would not be surprising, were this flood to happen once in six, or even once in ten years. It will likely yet be discovered, that when Lake Ontario has its *brim flood*, the others have *theirs* also during the same season ; and when powerful suns are seen to be excluded from drinking them, by the intervention of drizzling clouds, and this exclusion extending over an immense surface, we shall cease to marvel at those wonderful septennial floods. It has also been remarked, that the winters after those seasons have had little snow ; but meteorology on this score remains farther to be prosecuted, ere the theory dare be advanced, that it is from the moisture absorbed in the circumambient regions during summer, that the snows of winter are supplied. From what I have found, however, respecting basins, dams may be constructed to deepen rivers, otherwise out of our power to do so. Were the fens of England in a state of nature, and not, as they are, highly cultivated in some places, their rivers, by being turned into extensive basins, would soon scour themselves to the level of the ocean, merely by the *warping undulation* of the waters. In Scotland, the *lochs* are thus deepened by na-

ture, after the same manner as the Lakes of America.

Steam-Boats.

A steam-boat, if properly constructed, will live in as heavy a sea as a sailed ship, and perhaps where the latter would founder. Could the machinery be simplified, they would answer to navigate the ocean with in any part before the others; and this certainly may be simplified much. Instead of adding wheels and cranks, contrive to do away with them, and the thing will be effected. I measured the dimensions of two steam-boats on the St. Lawrence, which run between Quebec and Montreal: the first, or *Lady Sherbrook*, was 145 feet from stem to stern, the *Chamby*, 142; in width, from out to out of the paddle-wheels they were equal, which width was 50 feet: the former drew 10 feet water when laden, the latter 6.

A steam-boat, properly managed, with a good and powerful engine, will stem the rapid of a large river, if it be no more than three feet fall in the mile. I have frequently gone from Montreal up the River St. Lawrence to the village of La-prairie in an active little steam-boat: this is a rapid of about 15 feet in three miles. The boat

would not stem this if she were obliged to go direct against it; but the river being wide, she is enabled to take it obliquely, and the *side eddies* help her up very much. At one place, where the channel is very narrow, and Rapid strong, a violent struggle takes place between the power of the engine and the rapid; the former, however, overcomes the latter, being a quarter of an hour making about 50 yards of head-way: the scene is extremely interesting.

Ship-building.

Some years ago, as a ship with settlers was going out to Canada, the crew and passengers were alarmed with the appearance of some huge shapeless object, which they could not make out, between them and the horizon. Certain they were it could not be a wreck. While inspecting it over the gunwale with great anxiety, one of the sailors and a countryman would argue the point: the former would have it to be the "skeleton of a large whale;" the latter, a "haystack," adding, "that the grass grew so rank in America that oxen were covered over the backs in it, when at their pasture; that sometimes they built their stacks within the sweep of the river, which, when the floods came, drove them before it to the

ocean." Neither of these statements gave satisfaction:—when they bore down, what did it prove to be, but the stern half of the Columbus?

When at Quebec, I went and saw the Timber-yard on the Isle of Orleans, where this great ship and its brother, the Baron Renfrew, were built. What a scheme was this, to build ships ten times larger than any that ever had been built before! The person who constructed them certainly performed a wonderful task, and deserves applause for his ingenuity. The timber-merchants regret that they were not found to answer; as they cleared their ponds and coves of lumber, and of such pieces too, as no other ships would have any thing to do with: the St. Lawrence, for once, was swept of all its heavy sticks; they could not be found too bulky.

When steam-boats began to show themselves at first on sea, the sailors much disliked them, as they also did these monstrous ships; one captain answered for *ten*, nor were so many hands required in proportion.

In this scheme art was magnified beyond its proper scale, clearly showing that ships may be made too large, and houses also, with every other thing. When we look at the Baron Renfrew drifting upon the coast of France, although two

steam-boats, each of 120 horse power, were fixed on him for the purpose of pulling him into the Thames, the folly and presumption of man become truly apparent. A good many ships continue to be built at Quebec, but no *Barons* have been laid down on the stocks again. They have here a floating dock to repair the ships in,—a very clever invention: they sail into it, as a foot goes into a shoe: when the gate is shut, and water pumped out, then they are left dry to be examined. This will very likely be a great ship-building establishment, in course of time; it is well situated for such; plenty of timber, and deep water close to the shore; but carpenters and iron-work will probably not be found so easy as in England, with various other things, which we may be unaware of.

Sleighs.

These are neither all of one name nor construction. The *Traineaux* are the simplest of the whole, built on low runners or slides, drawn from a bar below, which shoves the snows before it, and forms the cahots or waves on the road, which are so troublesome. These bars have been frequently tried to be done away with by the Parliament; but the Canadians, although conscious they

are the cause of the hillocky roads, will not give up an old custom. So any thing of a brittle or tender nature is sure to be broken, if transported to any distance over the cahots.—The *Burline* is the travelling sleigh of the Canadians; it is just large enough to hold two comfortably,—a man and his wife for instance. It is on low runners, and not easily upset; it has *horns* by which the driver balances it; it will glide over very rough roads and untrod snows.—The *Cutter* is on high *runners*. The Americans are very fond of this sort: they are easily upset; but on smooth roads, or where the snows are not deep, they are more commodious than the *Burline*.

The *Carriole* is the noblest vehicle of the whole, and will carry a whole family. Some of these are constructed in a very genteel manner, silver-mounted, and in every respect as elegant, if not more so than an English coach: they are not unlike them in shape if taken off their wheels. The *Grandeess* make a wonderful display in them.

Rail-roads.

Panier rail-roads may be constructed with advantage, by making use of the natural trees of the forest for posts to the rails, were the trees cut down, some of them, lower than six feet from

the ground, on the line of road-way : yet, let the level be preserved as much as possible. Of course they will be higher in the valleys and gulleys than on the ridges. Let string pieces then be laid along on the stumps, the ends well indented into their tops, and so the road is ready for the *paniers*, which, as is well known, depend from a pair of wheels, placed before one another, having grooved rims to run on the rails. These roads would answer for new Settlements well ; they are formed at little expense, and made as easy through swamps as elsewhere.

Where water communication is so common, rail-roads may be dispensed with in Canada, excepting, where ores or mines have to be transported down from their hills to the rivers : in which case they might be found to answer well, and might be constructed of wood, in a most economical manner. We laid them from the great lime-stone quarries in the woods to the public works, where they proved of essential utility.

Thunder.

When in the wilderness, we were often beset with frightful thunder-storms. The sky through the thick branches of the trees would appear densely black, lightened up every minute with broad zig-

rag flashes, not so fleeting in their movements, nor so narrow, as those common in Europe. The peals, too, had a different sound: not sharp and hurtling, but hollow and louder—not similar to discharges of cannon, but explosions of powder-mills—and not so fraught with dread as with awe. They were always attended with heavy rain, which began to fall in large drops before the thunder proceeded to burst, and the clouds generally collected from the north-west, and never towards the cultivated country. We were coasting along the Opinicon, which is a lake of the fourth magnitude, when from a gloomy sky rain began to fall in such quantities, that we were glad to run the canoes into a break in the rocky shore. We crawled in beneath a large tree-root, that hung over a ledge of rotten moor-stone, that had partly fallen away from under it. The thunder shortly came on—I have heard nothing louder; the Indians kneeled, and seemed much alarmed; the waters of the lake, although jumping up in *pipe shanks* from the big drops of rain that were falling into it, were observed to quiver, and more than once lave the shore at our feet in little waves, yet no wind stirring. We observed several scrubby pines struck by the lightning on a small rocky island opposite to where we were. One of them

seemed much shattered, the branches stripped from the trunk, and the white wood appearing. It was in the month of August, and continued about three hours; generally they are longer in duration. When the banks of slaty and black-coloured clouds began to fall back, we turned up the canoes, and paddled over to the island. The Indians kept pointing and muttering, looked very wild and grave: I had not seen them so before. On examining the trees, one in particular, a thick scrubby larch, was robbed of all its branches, torn, apparently, forcibly from the trunk, which was split and shivered, but the root untouched. Several others had lost some of their branches, and were stripped of part of their bark. We had frequently met in the woods trees stripped in the same way before, but knew not the cause. The Indians would point to the clouds, and make us understand that it came from thence; but this scene on the island was a positive proof. The strands of bark peeled, ran up and down the tree, not in an angling direction, but with the grain; they were mostly about an inch in breadth; and sometimes the wood beneath the bark seemed stirred up also. There was nothing remarkable seen about the rocks, not a stone removed out of its place. What asto-

nished me most, was to find that the tree which was shattered the worst, had lost a part of its top some time before, perhaps by a gust of wind: this was lying beside it, and easily recognised by the appearance of the fracture. From this I am partly led to infer, that the *points* of this *old break* had attracted the electric fluid, and that there being more fluid than this *tree* could carry off, it shivered it to pieces,—while the surcharge was conducted by those in its immediate neighbourhood, whose bark was stripped off in strands, and perhaps a considerable quantity by others beside these, on which no marks had been imprinted.

Science has every cause to dread the *Thunder Rods* of Franklin; they *attract destruction*, and houses are safer without than with them. Were they able to carry off all the fluid they have the means of attracting, then there could be no danger; but this they are by no means able to do, and have been found *fused*. The Leyden Phial can receive an overcharge, and be burst by artificial means. Cocks on tops of steeples are certainly improper. Professor Leslie does not seem to relish points, and Lieut. Green of the Navy deserves great praise for wrenching them out of his Majesty's fleet, by strong reasoning and actual experiment. On all buildings and ships, the fewer

points the better: experience approves of blunt knobs and ropes leading into water, which, when wet, become good conductors. For all this, we are yet greatly in the dark respecting electricity.

Scientific Bushwork.

The wilderness of Canada puts science to her shifts in many instances. We want to go to a certain place, say ten miles distant, but are not aware of the exact point of the compass that this place bears from where we are. What is to be done? How shall we obtain the bearing thereof, so that a straight line may be run? Let a party of *Explorers* go to the place, and on the highest ground near it select a tall pine tree, and build a pile of fire-wood round it: when night comes, the pile is lighted, and up towers the pyramidal flame, which can be seen a great distance off. This is the *pillar of fire* our modern Israelites have to set the magnet to, that the promised land may be obtained. Sometimes, for the same purpose, a horn is winded to much advantage, to guide us through the cedar swamps and ash-swales. Thus the compass is unable to perform many things that it has been considered quite able to do.

Also, in taking what is termed *flying* levels through the dark woods, whose *umbrell* roofs pre-

clude the day-light: these levels require to be taken before those of a more accurate kind are determined on. A candle placed in a small lantern on the index of the levelling staff, and another candle on the table of the theodolite, have been found of essential benefit; for whenever the little star, formed by the candle on the staff, is caught by the leveller looking through the object-glass, and the *halt halloo* given, the level of the intervening land may be obtained with considerable niceness, and save an immense deal of labour in clearing brushwood and trees. By this method levels may be run through a wide tract of wilderness in a short time; and when these levels come to be proved, when clearing away and *picketing* take place, as when roads or canals are to be cut, they are always found to be wonderfully near the truth.

To discover what is designated the *lead*, or lay, of the land, has ever been considered a difficult thing in Canada, as we can get on the tops of no high hills to look round us, as in other countries. To obtain this much desired object, *balloons* have been proposed, to be managed in the same way as those about London, which let the Cockneys have a peep at the beauties of Houndsditch and Bartholomew Fair. Were these balloons in the *bush*,

and inflated with gas, (which gas is easily procured from the portable retort,) and then let up by a rope into the atmosphere, say 500 feet, they would be the means of lifting us above the loftiest forests, so that with spy-glasses we might survey the lead of the country; as the surface of the tops of the trees may be considered almost parallel to the surface of the ground they grow on.

Balloons must, therefore, not be considered altogether as baubles: although we are not able to *tack* with them through the aerial ocean, the renowned Buonaparte found use for them in frightening the boorish troops of the Banks of Wolga; and the Canada Land Company would derive considerable benefit from them, when looking out for the boundary lines of their *Crown Reserves*. By them they might discover many comfortable *squatters*, and calculate how many farms they had purchased, which are drowned beyond the hope of all revival, by the surveyor of the townships. They would see thousands of acres, the surface of lakes, which may be located for ever to otters and wild-geese. Balloons may be had ready made in London for something about 50*l*.

Cure for the Townships.

All classes of people in Canada but the *Lawyers* lament the manner in which the townships have

been laid out and surveyed. The surveyors are become perfectly ashamed of themselves. Let a law be passed as soon as possible, that the Townships be laid out according to their *natural boundaries* ; let all *concession lines* be run according to the order of nature ; and give all settlers deeds of their lands, that their progeny may know them thousands of years hence. How simple is this ! and how willing would the proprietors of lands in Canada be to pay for this survey ! Let all who have lands have as much as they have ever had ; but let the *march dyke* be built by nature, and not by the fanciful blazed lines of *straightness*, which are obscure and made to bewilder—*roads of ruin* in the wilderness. The Canada Company now sets an example ; the Townships of their extensive blocks will be bounded by the rivers, and the concessions by the brooks. Their surveyors are *rummagers*, who explore with their naked eyes, and not with *brass spy-glasses*.

Scorched Timber.

This is more difficult to get rid of with the hatchet, than if it had not been fire-touched ; a tree of this kind is as hard as stone, and will take a long time to decay. Perhaps this kind of timber might be rendered very valuable ; for although it

would take more workmanship to make any thing of it, still, when made, it would be much more valuable. The day may come when we may be led to season the timber of the forest with fire, when the endless oak groves on the banks of the Ottawa and the Lakes may be ignited; so that the British navy may be secured against the Dry Rot.

So long as we retain Canada, and this seems to me to be perfectly practicable for any term of years we please, we may always have plenty of timber; and this is a great matter to the owners of such an estate as the Ocean. One of its seas, to us, is as good as one of its islands—may we long keep our aquatic property, and liberally promote its cultivation! If we allow the Americans to *diddle* us here, as much as they do ashore, adieu to the glory of Britain! They are now mustering a fleet with all due perseverance;—we had better watch it; and the sooner we can conveniently set it in flames the better. We ought at the end of the late war to have issued the following advertisement:—“Having obtained the Ocean by a great sacrifice of life and gold, we mean to keep it: any Nation of the Earth who may seem envious of the same, shall have war proclaimed against it accordingly, when all armed ships and harbours shall be effectually destroyed.”

Concession Lines.

And so Jonathan is determined to squeeze poor John Bull, honest man, out of the New World altogether, at Hudson's Bay ! The ambition of the former, certainly surpasses that of any other creature on the face of the earth. He took from the latter the States by piecemeal ; has made many attempts at Canada ; and even now, by wielding his superior craft, he is worming away from him many valuable rights belonging to that interesting country. There was a day when the Boundary Lines of Canada ran almost to the town of New-York ; when they went down the Ohio, and part of the Mississipi, then struck westward in about twenty-five degrees of north latitude, and terminated in the Pacific Ocean ;—now they must run in the middle of the St. Lawrence, and be guided by Long Lake, and the Lake of the Woods ; and work their way to the Pacific about the forty-ninth degree of north latitude. Thus, we give up to him the whole of the Illinois, and Indian territory,—just some thousand square miles of valuable country,—for which we are never thanked. John, thou art cheated ! thou negotiatest with thy worthy child blindfolded : he knows the extent of thy property ; thou knowest it not. He knows thy weakness and frailty, fills thee drunk

as Ham did old Noah, then laughs at thee afterwards. For shame, honest John, to be so deluded ! but this shall not be. Thou hast friends, some of whom love thee, and who will open thy eyes to the immensity of thy possessions. But let Jonathan intrude not an inch farther : fain would he hide from view the wealth of the *North West coast of America*,—the other, and most valuable side of Canada, where rivers are swimming grey with salmon, where oak is found twelve feet in diameter, and where the otter, seal and beaver are in herds, and wear splendid habiliments. Keep him on his own side the Columbia. Get ye to Nootka and Queen Charlotte Sounds ; there build Quebecs and Montreals, and drive a trade and traffic, which will fill thy coffers and of which thou hast yet scarcely dreamed. Thou art at peace with the world ; this is thy season for such a noble settlement ; this is the time, ere it be wrenched from thee, when thou wilt be angry with thyself for overlooking thy duty. But it is needless to insist ; thou must take thy own time, thy dinner, and cigar, before thou wilt come down stairs to speak to a friend waiting below : but we must wait, and tell also of the manner in which the country is surveyed and laid out in townships. The Genius of Mathematics weeps at the scene ; and Nature calls

Science an impudent jade, for treating her so unmercifully. Canada, it may be said, is a *young* country ; but, surely, there was no need she should be surveyed by *young* Geometricians. Were there no *old ones* to be had ? Did not Peleg learn land-surveying ? and were not there numbers of them on the Nile in days of yore ? Where, confound them, can they be got to ! Poor Canada ! pity the way in which thou art divided amongst the multitude ! *Concession Lines*, what are they ? *blazed marks* now, as the term goes ; but in a few years, they will be

“ Ideal lines by fancy drawn.”—

Vain then for the farmer to cry out, “ Where is my boundary ? where my *march dyke* ? ” The trees are cut down or consumed by the fires of the forest, his property falls into Chancery, and the lawyers fatten on the *clearing*, that took many a day of weariful chopping. No river, no marsh, nor mountain, bounds the property or the township, either on the east or west, or any other point of the compass. Instead of a tract of land laid out artificially, without attending in any respect to the laws of nature, where the settler might build him a hut on the banks of a cooling stream, or beneath the brow of a mountain, he is compelled to go to the wilds, to become food for sorrow and musquitoes :

and when a father dies, he leaves his family behind him to the mercy of the lawyers of Canada. Can this be *Science*? can this be *Surveying*? But so it is.

Ice-shoves.

America, like the other quarters of the globe, affords many evidences of an universal deluge. Boulder-stones in immense quantities are common over the whole face of the country; in some places, piled above one another to a considerable height: these seem thus rounded and deposited, by being bowled with the agitation of violent waters on the extensive horizontal beds of limestone. Shells of various kinds, particularly of fresh water clams, cockles, and periwinkles, are met with in abundance. While excavating the soil, we find heaps of them several hundred feet above the level of Lake Ontario. In the vicinity of the rapids of large rivers, and indeed remote from them in many instances, we have *undulations* of rocks exactly similar to such in the beds of the rapids; for be it known, the channels of these are waved like the waters descending down them:—thus we can conclude what the bottom is like, from what we see on the surface.

Mr. Wright termed these wavy rocks, *ice-shoves*: he agreed that they had once been the channels of rapids, and were scooped out by the

spring floods, laden with ice. But the water seems able of itself to do this, without the aid of ice; for when a large body is in the act of descending from one level to another, if it meets with any resistance it rebounds, and then returns with a hollow sweep; which continues to act on a part of the channel with more fury than if there had been no interruption, and thus it affects the bottom. When *sleighs*, in the *snia-roads*, form one *cahot* or wave, others follow directly, in regular succession; for the *heave* that they make when descending from the crown of the *cahot*, creates a valley beyond. Wherever, then, we see waves in a rapid, they are reprinted below.

Stumps.

In clearing a woody country, these become one of the greatest obstacles; the stumps of resinous wood will not decay for twenty years; those of hard wood will endure five. Various machines and methods have been tried to eradicate them; still, *decay* is found to be the only effective engine. Levers of all kinds, screws, *dumbcrafts*, &c. can make no hand of them. *Gunpowder* is also by no means qualified; after repeated trials, we abandoned it altogether. In cutting canals where they must be removed, the best method was found to be

deep breast-work ; when undermined, they tumbled into the *cut*, while their weight loosened the adjoining soil. *Grubbing*, however, is considered a job by *itself* with the Americans, for which they are in the habit of receiving fifteen pounds per acre.

We found this laborious work, and not to answer. The stumps were *cut* out, not *rooted* out, for they were then as troublesome to manage, as if they had never been touched ; and even when *rooted out*, they were so bulky and unwieldy, we could not get them removed out of the way, and no fire could be applied able to consume them. Under these circumstances, they were left in the bottom of the excavations, on the *floor* of the deepest cut, to be burned when they were well dried in the suns of two or three summers ; or floated out of the way when the canal came to be filled with water. The effects of every year tell upon *stumps* ; we know the *ages* of *clearings* by examining them : that is to say, the year in which the farm had been cleared of trees. When large holes were bored into stumps, water would accumulate in them from the rains ; so the frost, in consequence, would break them up.

Dry-stone Locks, and Dams.

Canals in the country are much to be preferred before land-roads, through the woods ; they are

more easily constructed, and will require less repairs afterwards. Let the *dry-stone lock* be the one used to pass the rapids and *key-work dams*; the numerous rivers and streams, which wind through Canada in all directions, point to canals as the root of improvement. I would particularly mark out the *Trent navigation*, from the Bay of Quinty to Lake Simcoe. The *Thames navigation*, to open up the gardens of Erie, and a connexion between *Lake Huron* and the *Ottawa*, by way of the French River and Lake Nepising. Beavers make dams differently from us, they insert their stakes at an angle against the stream; we do the reverse: probably they are right.

The American *saw-mill dam* is very ingenious, formed of round logs notched into one another: its shape is the long wedge; the trees are laid by one another, slanting to the rapid, well bedded in the cross headers; the lower tier is the shortest and thickest; the upper, longer and smaller. This outer slope is generally laid at an angle of thirty degrees with the rapid. Floods seldom are able to wash these dams away, and they answer the end intended very well. They have a method of keeping water out of *coffer-dams*, by applying the thick hemlock boughs to the openings where the water is forcing its way through; thus, the boughs are dragged into the interstices, and

the dam made water-tight, without clay puddle as in England.

Water, Lime, and Sand.

The stone prevalent is *lime*; this is grey, brown, and black. There is a kind like grey granite; when calcined it is like fine flour. Granite of great variety is also common, and many kinds of sand-stone and slate. Flint and chalk seem rare. There is a limestone, which, when burned, makes a good cement, and will set well in water, called *Water Lime*: a cargo of this ought to be brought to England, and compared with that cement obtained from the ground pebbles of Sheppey.

Boulder Stones, of all sorts and sizes, are met with in abundance in Lower Canada: my worthy and scientific friend, Capt. Bolton, R.E. who examined these with the care of a mineralogist, expressed himself astonished at the great variety and value. There is little lime, however, in any of them.

In no country is there such abundance of the best building materials. The lime is superior to the best English Aberthaw; and the sand is remarkably good, being so well washed in the large fresh-water rivers. The houses built of stone and lime resist decay like the castles of yore, nor has the

frost of winter any effect on them. Plenty of fine *loam*, for foundry purposes, is also quite common, in the very neighbourhood of the extensive iron-mines; and although *flint* seems rare, there is plenty of *flinty sand*, which might be used in glass-works. These things are all more valuable than we are apt to consider them.

Refraction.

In fine summer weather, when the ocean seems a circular sheet of glass, whose boundary is the horizon,—when this beautiful liquid speculum receives a slight pulse from the atmosphere, a breath of breeze, as it were,—that spot which receives it becomes ruffled and of a darker colour than the surface surrounding it; the place seems *furred*, and is called by sailors a *cat-skin*. Sometimes this spot seems circular, but often of an irregular form, and this figure extends over a great space of the deep, chiefly by the undulation; sometimes again it spreads not beyond the horizon, but leaves spaces of the surface smooth and clear as before; sometimes these breezes come in a longitudinal manner, and the mirror of the deep seems divided into beautiful stripes. When these move to the horizon or go beyond it; or if a clear white stripe seems near it, and the horizon in *cat-skin stripe* beyond it; then the horizon is uplifted to the spec-

tator's eye, being reflected in this stripe of spectrum; and if there be a summer haze at the time, as there generally is, then this horizon is uplifted the higher. I have found it subtend an angle of many degrees; sometimes 10° , and again 15° , although the height of the ship's quarter-deck above the water was taken at 16 feet, allowing about $5\frac{1}{2}$ or 6 miles for the true distance. I have seen it seem above 100 feet high, and if viewed from the topmast, it did not seem much higher; indeed, I have sometimes found the appearance reduced by looking at it from the main-top. Ships between the observer and the clear stripe become double, but singularly so; one is above the other, the upper one bottom up, and their top-masts touching. But the length of the masts depends much on their situation, as also the size of their hulls: sometimes their hulls seem greatly magnified, their masts are shorter than they should be; again the reverse, if the hull seems in the clear stripe, the masts are then very long, as long as those of Bruce's Canja on the Nile. If the ships be beyond the real horizon, and no catskin horizon seen, then they are raised to the ridge of the clear white stripe, which looks like a belt of snow; and here they are sometimes in their natural position, never double or bottom up, as in the former case. Thus are islands and

coasts which are distant 70 and 80, nay 100 miles, with all the ships in that space, brought up to view, the ocean beyond itself, and frequently magnified in dimension; little crags, or the sides of mountains, always seen duly perpendicular. When this haze becomes agitated, the scene runs into beautiful disorder; islands break into rocks and fragments, ships seem dismasted, and the masts appear standing severed from the hulls; the bowsprit leaves the bow, and stands out a huge arrow; they then after a time unite. These things are seen to much perfection on the St. Lawrence and great lakes.

The haze when agitated will disorder the object, but the grand speculum itself may be disordered, which is most likely, and thus cause the difference in the apparent scenery: from this the *Flying Dutchman* at the Cape may be accounted for. The catskin horizon seems, in the rivers, running from bank to bank, like an elevated rail-road, or the most beautiful carriage-way: one of Nature's optical bridges, as it were. Refraction, by elevating distant objects, may both delude and befriend mariners; at all events, it forms one of the most beautiful lake scenes that can be, and breaks the tedious monotony of azure waters. It is a camera-obscura on a large scale, with more variations than I can altogether account

for, although this may be done by more able observers, and dispel superstition, in a measure, from the very superstitious sailor. Probably those mirrors formed by clouds of thin white vapour, as seen by travellers amongst the Hartz Mountains of Germany, may proceed from the same cause.

Corduroy Roads and Bridges.

In too many places in Canada the roads are carried over broad swamps and wide gullies, on round logs of wood, or rather trees, averaging a foot diameter, each laid close by one another's side, and no attempt made to fill up the spaces between them. These turnpikes are fancied to resemble that famous King's cloth, called *Corduroy*—hence their name. When Dante wrote his celebrated poem the “Inferno,” the critics blamed his muse for not selecting a proper highway to Pandemonium; but had she been aware of the nature of the Corduroy species, there is no doubt but that would have been chosen, as certainly none can be more decidedly infernal. In passing over them in a lumbering waggon, the poor human frame is jolted to pieces. But out of evil there always comes good; for were the country people to take too much care of their roads, so that passengers would have no reason to complain of them, then

they would receive no aid from the Colonial funds towards the trouble bestowed. As they are then, they will continue gradually to improve ; for when the officers of State take a drive, or when the members of Parliament travel to their public business, the *Road Bill* and *Turnpike Act* are strongly forced upon their recollections ; the Corduroy roads send in their own petitions in earnest. But not to joke too much on this important subject, as surely nothing can be more beneficial to any country than good roads and canals : if these roads and bridges were covered with boughs of trees, and these again with more tender branches, the *tenderest uppermost*, and these again covered with earth or clay, dug out of the *water-tables* or *ditches* alongside, (and the more earth, or clay dug out of the side ditches the better,) a good road would be the consequence. Canada not being a damp moist country, there is less need of Macadam here to chip the whitstone or crack the flints. In the spring and fall, the best of roads would be bad ; but in summer, the dry weather makes them delightful, and the frost and snow of winter much more so. There is a great complaint, however, made of running the greater part of the roads *straight lines*. Confound straight lines !—confound that unscientific system of *setting the compass*, and running to that set, or rhomb, smack

over hill and dale, river and swamp, without paying the least attention to declivities or acclivities, dangers and difficulties. Look at Nature; see how she makes her rivers meander and wimple, and at every bend doing good to some creature, or to some portion of the country; yet we will not follow her in our road-making business; we will hurry on with it in a direct course, as if it were a matter of immense moment, the delivery of a letter or a newspaper at Montreal, Sorrel, or elsewhere, while the broad extent of the flourishing country is neglected and disregarded.

Drowned Woods, Dams, and Swamp Improvement.

Millers, and others, when they raise the small rivers with dams, often flood extensive swamps, thickly growing with all kinds of timber. The waters thus raised on the roots and trunks of the trees, beyond the natural level, tend to destroy them; the sun and air are withheld from the soil on which they grow, so they gradually continue to wither away. When first we meet with large tracts of swamp forest thus running to decay, we are greatly at a loss to account for the cause of this melancholy phenomenon. We observe hundreds of acres of woods withering away, while at the same time they seem growing in three or four feet of water. The neighbouring forests are all,

perhaps, in full bud and bloom ; but the others remain, as in winter, without a leaf, without the slightest show of vegetation. In this state they will remain for ten or twelve years, in some instances less, according to the nature of the waters of the rivers which have flooded them. Afterwards they fall, as if cut away, or rather eaten through at that place said to be between wind and water ; but, more strictly speaking, that place between the various levels of floods. Here an action takes place that shaves them down, as it were, by the surface of the water. I have often thought that *dams*, in Canada, might be applied with more effect than axes to get rid of the trees of the forest, so expensive and troublesome to settlers. I am aware of many places in the wilderness where a small dam, perhaps one hundred feet long, and twenty feet high, would destroy, in eight years, the whole timber off 50,000 acres of fertile land. Surely this is much preferable to *girdling*, that barbarous method of slaying the trees by cutting girdles round them with the hatchet, and so leaving them to perish where they stand, withering for many years, and at last blown down by the wind—falling, perhaps, on some of the cattle grazing amongst them. By dams, land may be cleared for almost nothing ; whereas at present it costs 4*l.* an acre.

I would earnestly recommend to the Canada Company the use of dams. Let a great part of the Huron wild tract be flooded, which may easily be accomplished ; or, as an experiment, try it on the swamp of twelve miles square, which is in the middle of the property : let the outlets of all the streams from this swamp be choked up, so that the swamp may be covered with three feet of water. There is no doubt of its answering an excellent purpose, for it will then be converted into a great beaver-meadow. And what are such meadows ? have *they* not been made by dams ? Most certainly. And are not they clear of trees ? may they not also be turned into deep arable land, fit for growing the best and heaviest kinds of wheat ? and do not these furnish large quantities of hay ? From what I have seen with the drowned woods and beaver-meadows, there can be no doubt of the dams being able to extirpate the forest ; and as they cannot be used with such effect in townships partly settled and cleared, as they can in those where settlements have not taken place, of course, in such places as the great swamp in the Huron tract, they would be found most beneficial. But I would also earnestly recommend their application to the swamps and low marshes of the settled districts of Canada : they may be flooded by low dams, without injuring the clearances already made with

the hatchet ; and when they have shaven down the forest, which they do effectually, it will be found, on their removal, that they have reclaimed many excellent farms. Then, as the whole vegetable matter of the woods is thus decomposed by irrigation on the soil, the same must be left in a richer state by the water, than if the trees had been cut down in the usual way, and consumed with fire. For fences, fire-wood, &c. enough may be left growing on the hills and elevated places.

It may be argued, that dams would be but tedious engines with which to clear low lands and swamps ; but when we consider that such lands are always the last of any that the Settlers attempt to clear, as they betake themselves generally to lands higher situated, the dams might be working away the woods quietly, while they with their hatchets were clearing and fencing the more elevated portions of their farms ; and having thus expended ten or twelve years at this work, (and commonly they expend a much longer time,) the dams would be found, during that period, to have cleared a much more extensive and valuable surface. In the warm regions, rice may be grown in the greatest abundance, and it is even found wild in enormous quantities. The swamps, then, may well engage the attention of the Canadian agriculturist.

FIRST IMPRESSIONS.

THE following letter to a friend in Edinburgh may probably amuse some of those readers that may be disgusted with engineering matters :—

“ DEAR SIR,

“ YOU kindly request me to furnish some scientific article or other for the ‘ Philosophical Journal,’ but the nature of my wandering life precludes this. All I am able to do is to note down a few things in my memory, and transmit them to paper when found convenient, which is seldom the case. Your advice respecting note-books or journals is all very good ; but these are apt to be lost, as our field-books have often been. Our clothes, for instance, are torn off our backs in the thickets, or we are upset in canoes in the rapids ; then farewell to all scraps of paper. However,

I endeavour to remember things pretty correctly, and shall try to afford you a little food for 'Blackwood,' but nothing for our worthy 'Jamieson.' It is true that I have gathered some information in science that he might find acceptable, but then this requires much consideration, and double proofs, which I hope to be yet able to give. As a trait of Scotch character in a foreign country, I shall give you a sketch from real life.

" The Laird of Birrboy.

" Returning into the interior of Canada by a steam-boat from La Chine, near Montreal, an odd-dressed personage sailed along with us. He had on a short-tailed blue coat, with metal buttons, that once had been clear, but the salt spray of the Atlantic Ocean had dimmed their lustre; a woollen-striped *double-breasted* waistcoat; while a pair of velveteen pantaloons graced his *hurdies*. He was a forward kind of a little man from the south of Scotland, had paid but little attention to the cut of his whiskers, and the hair of his head seemed to furnish a good cover for game of a peculiar kind. The tone of my voice, or some other such Scotch keepsake, drew him near me, when the following confab took place.

" ' I hae surely seen your face somegate afore,

man; but whar, it's mair than I can cleverly tell.'

" 'At the fair o' Minnyive, man,' quoth I; 'are not ye—' there I hung fire, and he helped me out by adding—

" 'The Laird o' Birrboy.'

" 'Exactly,' I replied; and he believed, or seemed to believe me, although I had never seen his face in my life before. As the steam-boat neared the Lake of Two Mountains, on the Ottawa, giving the passenger a peep of the Wilderness—

" 'What a lang planting!' he exclaimed; 'I wonner wha's Laird o't?'

" I replied, in a kind of knowing manner, 'that we would see the *Laird* presently;' and shortly we came upon an Indian encampment by the bank of the river. The Indians were busy amongst their canoes, skinning some deer and musk-rat they had caught.

" 'Yonder, Birrboy, yonder's the Laird,' quoth I, pointing to an Indian chief, with the feathers of wild birds stuck round his hat, and long silver ear-rings hanging down on his shoulders.

" 'Bless me!' with open mouth, said Birrboy; 'and yon's the Laird?'

" 'It's all that's for him,' I continued; 'and yonder's the gardener coming after him:' this

was another Indian, with the branch of a tree on his shoulder for the fire.

“ ‘ Bless me! he’s a queer Laird that ; and is that ane o’ his seats ? ’ I explained it was, and that he had many such like up and down the ‘ Lang Planting.’ ”

“ ‘ What wad the bodies about Minnyive think, if they saw sic lairds and gardeners coming up the fair as thae, man ? ’ he exclaimed. ‘ I’ll be hanged gin they wadna creep in aneath the beds wi’ fear, like Poosy Mamurdie, and Nell Coskerie, in a thunner storm.’ ”

“ Landing on the shore, at a place called the *Chute of Blundo*, we came upon pieces of junk pinewood split up in thin pieces—

“ ‘ And what ca’ ye thae now ? ’ inquired the Scotchman.

“ ‘ Shingles,’ I replied ; ‘ the people of this country cover their houses with them.’—‘ Hech, man, and are thae the Canada Sclate ? ’ he returned, ‘ ye hae queer names for things here. There’s a shoel ike a swine-trough ye ca’ the *saboo* ; and anither ye ca’ the *galloo shoe*, that’s a double pair o’ shoon, I jalouse, in Fraunch langage, for ye pit on anither pair o’ shoon forby them : and then there’s a shoe ye ca’ the *morgason*, a kino thing like a big splenchan, the bodies row their feet in ;

Deil hang me if ever I heard o' sic names ! I'll never bring my mooth intoo wye o' pronouncing them.'

"Proceeding up the river, we at last came near to the public works.

" 'And is yon a timmer clauchan, we see ?' pointing to By-town, quoth the Laird.

" 'Ay, yonder are the *Shanties*,' I informed him, 'of a village the people are busy building.'

" 'Ay ; there again noo,' he replied, 'what a queer name ye hae for timmer houses !—confound it ! this bangs the wee knife.'

"I explained to him, that the first rough house the settler built was called a *Shanty* ; the next, which was more genteel, was a *Log-house* ; and third and last, was *clapboarded*. He expressed some astonishment at this, and wondered 'if I could recommend him to a *clout o' lan* onygate about, that he cud big a bit shanty on, and tak a blaw o' the pipe in wi' comfort.' I informed him that land was by no means scarce, that he might get a farm for an *auld sang*.

" 'Ay, man ! a farm larger than Birrboy for an auld sang !' This seemed much to please him, but he returned, "I hae nae siller, ye see, and what's the use o' a farm without it ? I maun e'en see to get into the public works gaen on here, and see to lay by a trifle. Ye aiblins ken some-

thing about the business here; I wush ye wad be sae kind as to tell me how to act, that I might find some employment.'

" 'Go to that gentleman over the way,' said I, pointing to our military commander, who was out bustling among the works.—'That man with the red coat and cocked hat?' he inquired.

" 'The same,' I returned; 'and say to him, that there was a man sent you to his honour, who had seen you at the fair of Minnyive in Scotland, and thought ye might be worth four shillings and sixpence a day as *Squad-master* of labourers.' He thanked me, and went off *instantly*, and told his story. The Colonel quickly guessed who had sent him; so the Laird of Birrboy was regularly installed in his situation, and seemed to understand his duty.

"About a month afterwards he came to me with a long face, and said, 'I had been gude, vera gude to him, but there was still a wee kindness I could do for him in a *quiet way*.'

" 'What is it?' I inquired.

" 'Why the wife, silly body, is down at Montreal, and as I hae a bit shanty bigged here, I wad like to gang down and bring her up, gif ye had nae objection.'—To which I replied, 'I could have none: but that he must apply to the

same gentleman as formerly, and see what he had to say in the matter.'

" ' Ay, but there's this in it : I doubt ye'll score me out o' the books, whan I'm awa.' I replied, that as to that I could say nothing. He went to the Colonel, asked the favour of being allowed to bring his wife ; which of course, was granted.

" Off went the Laird, as proud as a dog with two tails : but when he came to the bank of the river, to the *Steam-boat landing*, the said *batteau de feu*, as the French called her, had gone to the other side of the Ottawa, to take in part of her cargo. There was no boat about but the Government boat, in which were Colonel By, some ladies, and military officers, about to take a pleasure-sail up to the Falls of Chaudiere. This boat had pushed off, but *Birrboy* waved his hat, and cried ' Hoo, man, come hither ! ' when the rowers lay on their oars, and he was asked by some on board what he wanted ?—' I want a bit cast, man, to the ither side o' the water to the steam-boat.' Some one replied out of the boat, that it was impossible, as they were going on a pleasure-sail, and could not be troubled with him.

" ' Howts, man ! ' continued the persevering

Laird, 'it will take ye nought out o' yer wye to throw a puir body out on the point as ye gae by.'

" 'Confound ye !' replied the Colonel, as they pushed in the boat, 'if ye are not a *Scotchman in truth*, I'm in ignorance.'

" How joyfully did he take his seat amongst the officers and ladies, smiling to himself, with all the humour of Dunscore depicted in his countenance. I looked and laughed after my worthy countryman ; and never was so fortunate as to meet him again.

" You may probably wish to know the state of learning in America, to gratify your college acquaintance.

" Literature does not seem to flourish either in Canada or the United States. Newspapers are very plentiful, and read with considerable avidity. *Poets* are rare, and local poetry is not to be met with. In the latter-mentioned country, the newspapers are generally printed on very bad paper ; they are so faintly marked, that it is difficult to read them, and commonly crammed full of very indifferent matter ; they want a Dr. Franklin to arise again, and regulate this business. It is somewhat curious, that Mr. Campbell found a subject for his muse here in the Gertrude of

Wyoming ; but it is generally thought, that if he had personally known the *scene of action*, he would never have written a line about it. The fancy is stronger *out* of the land than *in* it. The human mind is so bewildered amid things of such extent and magnitude, apparently beyond calculation, and without end, that its functions relax, and incline us to fall asleep ; I have found this operate so at least with myself. In summer, thinking was very oppressive ; but when buried beneath the snows of winter, the imagination was much more active.

“ In Britain, for instance, every thing in a general sense is so well known to almost every body, that we easily grasp it with the intellect. In America, it is not so ; while the intense labour and anxiety necessary in order to obtain this, seem to make the inhabitants inquisitive, even to impertinence. They are involved amid a mass of confused information, which certainly tends to confound and enervate the understanding.

“ Indeed they commonly attempt to expound facts which people of sense do not doubt, and seldom ever venture into those questions which have divided the opinions of men for ages.

“ Poetry is very much disliked, unless it be of the *Parody* order ; and there are about Boston,

those who write good parodies, such, for instance, as on the 'Burial of Sir John Moore,' and the verses on *Polly Dow*, which are certainly good. These you have doubtless seen, as you read every thing, whether got up in the land of freedom, or the empire of the Great Mogul. Has 'Davie Laing,' the bookseller, been lately at Leipsick fair?—Compliments to all friends in *Gibb's Entry*. Peace be with you. Amen."

It seems to me that there are Americans, who, if confined to a small rocky island in the middle of the ocean, would produce poetical and philosophical books in abundance, that might vie with any published in Europe for vivid flashes of fancy, or profound and original ideas. They print our books in a very careless manner, and make them look as shabby as possible: I have often regretted to meet with my favourite authors so treated: nothing of the *hot press* or *fine wove* here; while the spelling being bad, greatly clouds the sense. The books most commonly met with in the country, are the 'History of the United States,' Methodist Prayer Books, and *Tracts*. These last are to be met with in every steam-boat in bunches, which, instead of elucidating the Scriptures as they propose, only attempt to render them obscure.

SINGULARITIES OF VARIOUS ANIMALS.

Chub-fish.

WHEN in the wilderness, during very hot days, we often found ourselves towards noon so overcome by the heat, that we were unable to proceed in our surveys. We would then creep into a brushwood shade by the banks of the river, and amuse ourselves with catching chub, with a rude line and hook attached to a very humble rod, selected out of the brushwood. The bait used was frequently a piece of white pork ; but when grasshoppers or crickets could be had, these were preferred, as it was easy to see the chub relished them better. They would gather round us in swarms, so that the pool where we angled seemed full of them : they looked as if delighted to be caught, would swim near the surface, and wonder what was become of the baits, when at any

time we were obliged to withdraw them. They are a very greedy fish, and not particularly good to eat; however, they tasted pretty well in a place where there was no choice, and where very few dainties were likely to be met with. Had the good old Isaak Walton been with us, he might have found some pleasure in his favourite sport; and other reflections would perhaps have arisen in his mind on the occasion, very different from those indulged in at the chub-pools of England.

Butterflies.

[Extract of a Letter to a Friend,]

“Were I able to furnish a proper account of the Insects met with in Canada, it should soon be given, for I would spare no trouble to advance human knowledge in every branch, had I sufficient leisure; but I am so busy amongst canals, that the fire-flies of the evening escape notice, and the music of the crickets is not heard. The field of science which you would wish to inquire into is, in this country, very extensive, the heat being so intense toward the middle of summer, and vegetation so luxuriant. During the mornings of the hot days a curious buzzing sound is heard in the woods; this continues to die away as the sun

mounts the firmament, but from whence it proceeds has never yet been discovered ; doubtless it is a concert of insects of some kind or other.

“ One of the Canadians in the woods complained bitterly of a pain in his ear ; the poor fellow was in the greatest agony for several days, and could not work his paddle in the canoe. His comrades came and told me, ‘ that some kind of an ant had got into his head by the hearing aperture, that it was there laying its eggs, and that he would die,’ as they knew of instances where such a thing proved fatal. This hurt my feelings very much, as the young man was beloved by us all, could sing a canoe-song with great grace, and assist to carry the cargoes over portages like a little pack-horse. We took him in our arms, and puffed tobacco-smoke into his ear, keeping the head reclined to that side ; having continued at this for a few minutes, we beheld something drop out of his ear amongst the leaves. This I had no doubt was the insect ; but falling where it did, we were unable to find it, else it should have undergone minute inspection. Our friend was troubled with no more pain in his head. The idea of smoking out these insects occurred to me from having seen hives of bees destroyed with sulphur smoke, and badgers compelled to quit their holes in the earth ;

indeed smoke may be used to much advantage in destroying the vermin of caves. They ought always to be fumigated before travellers explore them, so that venomous insects may be driven out of the way.

“ The Butterflies are of great variety ; some of them have beautiful coloured wings. The late Sir Joseph Banks allowed a Naturalist a very handsome salary to make collections in American entomology : I was fortunate enough to meet with this gentleman in Nova Scotia. He had caught more butterflies perhaps than any other ever did, and remitted them carefully to his employer, whose death he greatly deplored—not on account of his salary being withdrawn, but because ‘ there were none now to second his labours, none who would look at his collection.’

“ ‘ This, then,’ is not a fly-catching age, I presume.’ ‘ No,’ he replied, ‘ these are the days of gull-catching.’ Yet we both agreed it was so far good, inasmuch as the same is also a branch of natural history. He was a man of much good-humour, and we took some curious excursions together into the country.”

Lake Salmon.

These fish are found weighing from twenty to sixty pounds, are good to eat, although not so finely flavoured as those which live more in the salt seas. That these have no connexion with them is evident, from our finding them in those lakes above the great Falls of Niagara, up which they are not supposed by any Naturalist to be able to “summersault,” as old Mic Drayton, the venerable bard, terms their leap. Were this not the case, we might probably conclude that they were able to migrate from Lake Ontario beneath the Falls to the Gulf, in despite of the Rapids of the St. Lawrence; as we know that Salmon can stem very powerful cataracts in Great Britain.

However, from the fact above stated, of meeting with them plentifully in the upper lakes, even larger in Lake Superior than elsewhere, we must conclude, that they are no more able to clamber up the Rapids of the St. Lawrence, than summersault over the Falls of Niagara. Another proof of the superior sweeping power of a huge mass of waters, over that proceeding from a lesser mass on the same inclined plane;—or speaking still plainer, were the St. Lawrence to shrink away to the size of the Tweed, salmon might be able to travel be-

tween the ocean and Lake Ontario, although the present difference of level remained. It is singular, that those fish are not found in any of the inland lakes of Canada, but those connected with the St. Lawrence ; probably the frost may be the cause of this, as such lakes are chiefly covered in winter with more compact floorings of ice ; and we know that fish are fond of air-holes and breathing-places.

Moles.

These animals are almost unknown. I saw the skin of one stuffed, which was caught at the Lake Alimet by an Indian. It was neither so thick as the English mole, nor had it such black-coloured fur : it seemed to be an animal between the mole and shrew-mouse. There are no such things to be anywhere seen as mole-hills.

Moles do not seem to relish Canada, whether it is that there is too much wood, or more frost than is agreeable to them. It may not be unlikely that frost is the chief cause, as in the cleared parts of the country they are not heard of. As a proof of the extensive fertile landed property of the Duke of Buccleugh, it is said that his Grace employs "three hundred and sixty mole-catchers ;" but, were his estates in Canada, he would not require so many.

Naturalists are much at a loss to account for the general utility of the mole. Some argue that he is of benefit to the farmer as a destroyer of worms; but that he ~~does~~ more injury to the crops, in hunting after his favourite food, by thus obtaining his honest livelihood. Were we to see the mole exactly in his natural situation, we should be much better able to judge respecting the place and end for which he is created. We are only acquainted with him in the loamy agricultural lands of Europe; in rough wild countries he is unknown. The mole seems to admire the spirit of cultivation like the rook, and like it, is not much beloved by the husbandman. At the same time the farmer would not like them to be totally abolished; and indeed, they are too crafty (both the mole and the rook) ever to allow such a thing to come to pass: they may be kept down, but never entirely annihilated.

In the county of Westmoreland in England, mole-catching for the last century has become a science of its own, and those who wish to live by their knowledge of it, must serve a seven years' apprenticeship. It is from this county that Great Britain receives her mole-catchers, just as she receives her gardeners from the parish of Dreep-daily; and were we to examine the science mi-

nutely, we should find that it fully required seven years' hard study, accompanied with great practice, to come to moderate proficiency, much less to receive a diploma for our skill. The mole is quite a philosopher in his way, and changes his plan of life, according to the lands he frequents ; he has different modes for fallows, mosses, pastures, and gardens, all peculiar in form. His great fastness is remote from the feeding-ground, commonly in a thicket, or beneath an old wall, not to be come at. The great aim of the mole-catcher is to understand the lead of the land so well, that the mystic path may be known, between the keep and the feeding-ground ; which path is trod by the mole daily. This is the secret of the science. A gas-man knows where his pipes are laid in the streets of a great city, because *he laid* them there ; no man else does ; but a proper educated mole-catcher, by the lead of the land, and various other circumstances, can tell where the *mole-walk* is, although hid deep in the ground ; and this is the place where he fixes his ingenious and simple trap.

Bees.

Bees thrive very well in Canada ; the honey, however, is not of the first-rate quality, owing to the flowers not being so plentiful as the trees.

Plenty of good mead might be brewed, and we are surprised not to find this done. In winter the beehives are housed in, which serves to protect them against the inclemency of the weather. There are numbers of bees in the woods, with their nests in the hollow trees; but their sweet treasures are not much sought after, except by the bears.

Once, when in the woods, we came upon a Settler cutting down a large tree by the banks of a river, on which his bees had swarmed; but long before he cut down the pine, the hive had taken the alarm and moved off to where they would not be disturbed.

Mice, Musk-rats, Skunks, and Squirrels.

Mice are not numerous; and seem to be very diminutive in size. I have seen them in places where food was very plentiful, and yet they never looked fat and plump like those seen at home. The Musk-rats build their nests of bent in the marshes and grassy edges of the rivers; in winter-time, when the frost withers the herbage, their nests are seen sitting in the ice, like so many large beehives. The Indians hunt this little animal greatly on account of its fur; it is somewhat larger than the water-rat of Europe.

It is long since rats were introduced into the country ; and whether they are natives or not, cannot be exactly known. However, we do not find them far up the rivers ; they had not reached By-town in 1829, but they swarm in Montreal.

The Skunk is an animal of the Polecat species ; it is common in the woods. When irritated, it has a singular method of voiding some kind of a fluid, which has such an unsavoury smell that no animal will approach it. " He smells like a Skunk," is a favourite phrase with the Americans, when on the reviling key.

THE INDIANS.

BEFORE leaving England, I was often told to take care of myself, as the natives of the wilds would be apt to scalp me. However, from what I had learned from the books of travellers, I thought there was little to dread in this respect; and so it was found. They are a very harmless people, so far as my experience amongst them goes. When at any time intoxicated with spirituous liquors, they are rather dangerous, and not to be trifled with; at other times, an European may live and wander with them long enough, without fear of molestation. They are very kind, and will do every thing they conceive will oblige strangers. Those residing in the villages in the settled parts of Canada, embrace the Catholic form of religion, and have their churches and priests. When the bishop passes them, they will

kneel down and cross themselves, seemingly impressed with considerable awe. In these villages they live very poorly, as they will not cultivate their lands; and as the hunting-ground becomes annually more remote, they find themselves but indifferently supplied with game. They will steal up the rivers in their canoes, and poach the hunting-grounds of those tribes who do not reside in the villages. In these exploits they often, of course, meet with enemies; but few serious broils take place in consequence. They restore the booty plundered, when detected, to its rightful owners; and so the crime is hushed. I have met with them on these excursions; and likewise returning, pursued by those whose districts they had been robbing of beavers, deers, and muskrats. Whether or not they will be obliged to lay their "hands to the plough" after a few years, and become honest farmers, is difficult to answer. They seem rather disposed to hold out and suffer extirpation, than betake themselves to planting and reaping, by artificial means, the fruits and roots of the earth. Their celebrated chief, Mr. Brandt, has been endeavouring to establish schools amongst the nations of the Mohawks, but with what success we have not learned. The lakes and rivers seem to grant a more constant supply

of fish than the forests do of game ; as the former are less under the control of man than the latter. We may cut down the trees, but cannot so easily cut away the waters; and thus the Indians, who depend more on fishing than hunting for subsistence, are the best off. Yet when the frost seals up the waters, they are compelled to prowl the wild woods with their guns ; however, those living by the banks of good fishing-lakes contrive to catch trout, independent of the ice, by boring holes through it in various places, and introducing spear-hooks, nets, &c. such as they find will suit their purpose.

So far as I am aware, they have no marriage ceremony: the Chief selects whatever wives he pleases, and generally decides all matrimonial questions amongst the members of his tribe. Many of the girls are very handsome; and an Indian knows a good-looking woman, as well as any man: he makes little fuss about love, however much he may feel its influence; and we have not heard that he has ever been seen on his knees imploring the object of his affection to accede to his amorous wishes: he is seldom known to treat his wife with indifference, nor yet to chastise her after a brutal manner. They seldom walk arm-in-arm; generally, the wives follow their hus-

bands at what we conceive they suppose to be a respectable distance. They marry about the years of puberty, but have not very many children ; five or six may be considered a large family. They frequently leave their wives to wander long journeys by themselves ; and the females, when so left, do not seem to suffer, as we would suppose, from their protectors being absent. They are considered to be very faithful to their husbands ; and it did not come to our ears, that there were many old maids or bachelors in the various tribes ; neither did we learn that widows were very common. They esteem the British before the Americans, but they love the French Canadians more than either : indeed, they seem to derive great amusement from them ; will dance round, while the Canadian dances and laughs also, as well as he can. They seem formed for one another ; the one all fun and vivacity, the other gravity itself : they are the only nation whose language they will allow their lips to utter. Many of them understand English well, but will not speak it. They seem to have a pride in the other, and will sing some of the French songs with much melody and animation ; and the French are not backward in returning the compliment. They will accept of their half-breeds, as if they were altogether their

own people. The Indian and Canadian, although perfectly different characters, are nevertheless the very best of friends. As *Voyageurs* we used to think more of the French in some respects; but in others again, we valued the Indians. The former are the best drudges, the latter the best pilots; the first are the best men at the Portages, the last are valuable in the Rapids; both can endure great fatigue. The Indian is wakeful, the Canadian is more inclined to sleep; we durst play all manner of tricks with him, but never made so free with the other; his serious countenance holds one at bay, while the laughable one of the former, invites us to make fun.

During the late wars in Canada, nothing alarmed the Americans more than the yells of the Indians in the woods; they had great dread of the scalping knife and tomahawk. Indeed Tecumseh, the Chief, gave them cause for this apprehension. Like all other savages, they are but of little use in regular engagements; but no sooner is the foe repulsed, and a retreat sounded, than the fugitives are hunted down, and slaughtered without mercy. Their call-cry is heard at a long distance off, and they can hear it when we cannot: it consists of three sharp whoops, and a long termination; making the woods all ring again. In their

long journeys through the wilderness, they follow one another in strings, at a kind of half-trot, humming a song to the same. Those who lead, particularly if in winter, have of course the worst of the way ; they therefore contrive their march so as to lead time about, some advancing to the front, others falling back to the rear. The scene is not without interest.

They have a particular aversion to beards ; and have a spiral wire machine for plucking out the hairs by the roots. These spiral cylinders they apply to the cheeks, the beard comes through between the wires, which they press together, and so extract it,—when the spring wires open back again, for a new pull.

It seems that the continent of America is not very favourable to the growth of beards and whiskers ; barbers and rasors are not in great request. The people of the United States are seldom troubled with rough chins, and many of them are beardless all the days of their lives : the Indians have little hair on their faces ; and even that is disliked, and eradicated with great pains. Doubtless, climate effects this, as it does the colour of the skin. They do not seem to be creatures of imagination,—given to dreams and poetry ; yet they are always overburthened with

thought, and we cannot find what they are thinking about.

They are curious, and let very little escape their notice ; but at the same time very incommunicative, even amongst themselves. The best method of obtaining information from them is, to ask for nothing in a direct manner ; but keep talking in a very indifferent and careless way. If they think themselves in possession of secrets, which doubtless they are to a very considerable extent, and that we mean to surprise them into divulging, the attempt will perfectly fail, and they will not hesitate to laugh at us for supposing that they would be so silly as to inform us at their own expense. Travellers have already done much justice to their character ; it were surely a blessing bestowed on earth, if all the nations of human beings thereon, were as good as they are.

STATISTICAL TABLE

Of several wild Territories in North America, collected with care from many various sources never before submitted.

| British Possessions. | | Possessions of the United States. | |
|----------------------------|----------|-----------------------------------|------------|
| Settlers. | Natives. | Settlers. | Natives. |
| Lower Canada | 15,000 | Indiana | 124,000 |
| Upper Canada | 28,000 | Louisiana | 186,000 |
| New Brunswick | 12,000 | District of Columbia | 62,000 |
| Nova Scotia | 5,000 | Michigan Territory | 23,000 |
| Cape Breton | 4,000 | Missouri Territory | 54,000 |
| Prince Edward's Island .. | 3,000 | Mississippi Territory | 21,000 |
| Newfoundland | 4,000 | North West Territory | 62,000 |
| Anticosti | 30 | Illinois Territory | 5,000 |
| Labrador | 860 | In the other Eighteen | |
| North-west Territory | 2,500 | United States | 815,000 |
| Hunting Ground of the | | | |
| Hudson's Bay Company, | 4,800 | | |
| Esquimaux Country | 250 | | |
| | 882,435 | | 12,014,500 |
| | 1097,680 | | 1,516,000 |

By this we discover that the Indians form about one-fifth of the North American population.

THE WELLAND CANAL.

A COMPANY was incorporated in the year 1825, by an Act of the Provincial Parliament of Upper Canada, for the purpose of connecting Lakes Erie and Ontario by a canal, of sufficient dimensions to admit the passage of vessels of 125 tons burden. The capital, 200,000*l.* Canada currency, or 180,000*l.* sterling, is divided into 16,000 shares, of the value of 11*l.* 5*s.* each ; of these shares 13,533 have been subscribed for, and 2,467 shares, amounting to 27,753*l.* 15*s.* remain undisposed of.

The extreme length of this canal is forty-one miles and a half, of which only about nineteen required entire excavation, the remainder being a natural navigation, caused by rivers and reservoirs. The summit of Lake Erie is 330 feet above Ontario, and the ascent is surmounted by

thirty-seven locks. There are two communications with Lake Erie, the one by the Niagara, which will be finished by the 1st of November next—the other by the Grand River, which has been contracted for, and will be finished by the 1st of November 1829.

The extent of the country connected by this canal, may be seen by reference to a map of North America. From Lake Erie there is an uninterrupted communication to Lakes St. Clair, Huron, and Michigan, and the connexion with Lake Superior, at the Sous St. Marie, may be rendered navigable at a small expense; and although the trade of the country bordering on Lake Erie alone, is a sufficient object for this canal, its profits must eventually be much increased by the navigation of the lakes beyond, and the settlements upon those lakes greatly advanced by the opening of this communication. A canal from Lake Erie to the Ohio, in the United States, will be finished next season, by which the produce of a great portion of the country bordering on the Ohio and Mississippi rivers, will be conveyed to Lake Erie. According to the statement of the collector of the customs at Sandusky, (an American port on Lake Erie,) the merchandise landed at that place alone, last season, after passing

through the American Erie Canal, amounted to 1,319,823 dollars, from whence it was taken by land, for the supply of the States bordering on the Ohio. What then may be expected when these waters are connected by a navigable communication ?

When property is once afloat on Lake Erie, even if destined for the New York market, it will unquestionably pass through the Welland Canal, and enter the American Canal at Oswego, on Lake Ontario, in preference to entering it at Buffalo, on Lake Erie ; because there will not only be thereby saved 127 miles of canal navigation in boats from Buffalo to Syracuse, but the distance upon Lake Erie will be shortened 48 miles, and from the accumulation of ice in the spring at the entrance of the Niagara River, the navigation by the Welland Canal will be opened a month earlier every year. However, there can be no doubt there will be, in a few years, from an extent of 50,000,000 acres of land, which is situated on Lake Erie, and the waters above it, as much as both those channels can convey.

I visited this canal in the spring of 1827, at the request of the Provincial Government of Upper Canada, and afterwards transmitted the following account to Major Hillier, the Secretary.

“ St. Catherine’s, March 24, 1827.

“ Honourable Sir,—According to your polite request, I have visited the works of the Welland Canal, and examined the same with my utmost care and precaution, and now beg leave to return you a general report.

“ The Welland Canal may well be considered one of the most wonderful of the hydraulic contrivances of man ; for by this work he means to surmount the stupendous waterfall of Niagara, and connect, by sheets of still water, as it were, the large and beautiful Lakes of Erie and Ontario, although the former lake is about 330 feet above the level of the latter. At present I will not take upon myself to say whether the route chosen for this great work is the most eligible, as I have not explored and surveyed the country sufficiently to be enabled to come to a fair conclusion on the subject ; nevertheless, I shall allow myself to offer a few suggestions

“ Had the route been up the grand river Ouse from Lake Erie, and down to Lake Ontario by Dundas, Coot’s Paradise, Burlington Bay, &c. the Canal would then have improved a larger portion of country ; but it being intended as a ship canal, the shortest route possible ought to be adopted ; although the above line for boat navi-

gation has many advantages, and will yet, doubtless, be made navigable, as the capital town of the Canada Company is on the line, and much traffic may therefore be expected from that quarter in a short time.

“ Again, by adopting the present route from Port Dalhousie, which is in the mouth of the Twelve-mile Creek Ontario, and continuing up the creek and through the Deep Cut to the Welland and Chippawa River ; then, instead of proceeding on through the Wainfleet Marsh, as proposed and intended, for twelve miles, until the Grand River Ouse be gained, and thence going down it to Lake Erie, if the Welland River had in lieu been adopted, and so down to the Niagara River, and thence to the Lake, nothing would have been gained, as the mouth of the Niagara River, which opens into Lake Erie, is bound up with ice for a month after the mouth of the Grand River is open, which is an object of great importance to the trade of a large country. So far, therefore, as I may be allowed to judge, the route selected is evidently superior to the others proposed. In the first route, by the Grand River, the elevations to surmount would be greater, and distance more. In the second, the distance would be about the same, but the obstructions from ice greater. I

am inclined to think, however, that a good route might have been found for large boats up the Niagara River, as in that route the Tunnel Lock might be used to great advantage ; and I am not afraid to say, that the Falls of Niagara, great as they are, and sublime beyond description, may be surmounted by one lock of a peculiar formation, termed the *Tunnel Lock*, a contrivance which seems well adapted as an engine for surmounting the huge rapids and waterfalls of Canada.

“Be these things, however, as they may, I began my examination of the canal at Port Dalhousie, Lake Ontario, which may be made an *excellent* harbour. I was happy to find that the canal had been taken into the Bay at the proper place, and that the piers were run out at the proper angle of storm nearly, which is about north, sixty-two degrees west ; but was astonished, when informed that a breakwater was meant to be speedily erected to shield the entrance. This should not be done ; all that is wanted is to make a return pier of the east pier, as has been proposed at Burlington Beach Canal, the pier-head to project until it comes in a line with the inside of West Pier, the piers then being 200 feet asunder. This will effectually shelter the entrance from storms, at the same time not allow it to fill up with mud, which

it will do where there is a breakwater built. It must be owned, that to form a harbour at Port Dalhousie, is a much more easy task than at Burlington; as in the former place, the soil is brown alluvial, the very soil befitting piles; whereas, in the other, it is running sand on the surface, and hard pan or wet sand for two feet down. On sounding the waters round the pier-heads, and out in the Bay, I found that the piers were run already far enough into the Lake, and they ought to be finished as soon as possible. In the filling up of the Cribs, brushwood and pebble have been the main materials hitherto used, which answer that purpose extremely ill; better to have filled the Cribs with the tenacious red loam, which is every where common in abundance; but had they been made up with water-soaked oak, the whole would have been much more secure. Where the East Pier terminates on the beach, it must have a gentle curve, so to divert the waters of the Lake when dashing against it, as to roll along and spend their fury on the beach; if this is not done, the waters of the Lake will get behind the Entrance Lock, and do it much damage. At a small distance from the head of the piers, the water in the Lake shallows to nine feet, but this may easily be deepened to any extent by the iron drags, when

the Lock and Grand Dam in the Bay are finished, as then a backwater of the capacious basin may be made sufficient to deepen any channel at any time, by the opening of the lock gates, and allowing the rushing waters to wash out the raked-up bottom of the channel; and immediately beyond this bar of nine feet water, the Lake deepens to twenty feet and upwards.

“To run a dam directly across the mouth of the creek seems to be a wise project, as then a capacious timber pond and basin are secured to the public, of about 500 acres; but the dam at present considered nearly finished, is not one by any means sufficient for the purpose intended; the basement and height of this dam being about equal, will never resist the pressure it has to sustain, more particularly when *freshets* come down the creek, (and this creek is much troubled with *freshets* or sudden floods of water;) the surrounding soil being clay, will not admit of the rain sinking in it, and when rains fall, they have to descend off the soil furiously, as if off a table of rock. The entrance lock is only five feet lift, but it ought to have been eight, and the dam in proportion, as at present the lift will not make the basin deep enough to be navigable for the proper-sized schooners of the Lakes; however, it may yet be

altered at a trifling expense, and the basement of the dam must be three times its altitude. In this dam I observe brushwood laid in, which will even more and more promote its destruction: it ought to be made substantial as soon as possible. A row of piles eight feet asunder must be driven along its whole length on the lake side; let the dam then be raised of brown loam, and covered with water-soaked round logs, laid longitudinally over the whole of it, so to prevent the frosts and thaws taking effect as they do, by dissolving the whole. On the opposite bank of the creek from that where the canal enters, the waste weir ought to be made, by piles driven into the natural solid bank the width of the weir, then strongly cilled and bound atop, for the waters to rush over in floods without destroying the work. In the middle of this basin already described, but rather toward the canal side, a towing-path has been attempted to be constructed by a mound of earth, rising above the level of the waters in the basin when filled; and a floating bridge made through it about 200 yards from the entrance lock to permit vessels to get into the basin. There is nothing about the whole work which seems to me to be so badly designed as this towing-path. In the first place, it is like a bar purposely formed to

obstruct the navigation in the basin ; and secondly, it will dissolve away by the water and frost, so that it will be almost impossible to keep it in a state of repair ; and thirdly, as the canal is for schooners and steam-boats, there was no use for a towing-path at all,—and if there had, why was it not made along the natural bank of the basin, as pointed out by Mr. Clowes, the engineer ? With respect to the law adopted for forming the canal up the creek to the village of St. Catherine's, which is about four miles from its mouth at Port Dalhousie, I am strongly inclined to think that it should have been kept as near to the one bank or the other of the creek as possible : that on which the village of St. Catherine's is situated, seems the preferable, having fewest bights or bends. By doing this, and always rising a little higher in the natural bank from the lifts of the locks, the canal and locks would have been effectually out of the reach of the *freshets* ; as this matter stands at present, they will always be receiving partial damage from them. The laws of Nature must always be strictly attended to—and water, one of her elements, will have its way.

“ As to the wooden locks, I conceive few engineers could have cause to complain of them, if they were strongly pinned down to the earth with piles

30 feet long, and all the sides, cills, and headings properly secured with sheeting piles ; as they are, unless this be done, (and it may yet be done in some measure,) the locks will evidently give way to the pressure coming against them.

“As the work, therefore, stands in the Twelve-mile Creek, it seems to me not to be substantial enough even for a boat canal of locks twenty feet wide, five deep, and 100 feet long ; whereas the locks are thirty-two feet wide, eight deep, and 125 long, intended for schooners and steam-boats. The wooden lock of ten-feet lift has about 2000 tons of water pressing on the bottom of it when full, which bottom ought to be strongly piled and planked, and somewhat inverted ; then, as the pressure on the sides of the lock increases according to the squares of the depths, on the first foot down sides there will be $3\frac{1}{4}$ tons pressing on the whole length, and at the bottoms of the sides 324 tons, viz. on the bottom foot—making about 2100 pressure on each side. Then the lock-walls, being fifteen feet wide of framework, filled with clay puddle, and having fifteen feet width of clay backing, bring 2600 tons of matter to resist the water in the lock when full. Taking the water at 60 pounds per cubic foot, which it is nearly, and the clay at 100 pounds,

which I believe is rather too much, we thus have 500 tons to keep down the side from blowing—that is, floating up—from the waters forcing their way beneath it, which is sufficient would things remain in equilibrium; but this they do not, for when the lock is empty, or rather when the lift-waters are out of it, which are ten feet deep, there only remain eight feet water in the lock, or 960 tons to oppose 2600 tons. If then a freshet comes down the creek, when this water is in the lock, the pressure will increase behind the sides enormously, and may be apt to crush them together; or if the lift-waters be in the lock, and any accident take place in the waste weirs, such as choking up, then the sides of the lock are in danger of spreading, from the waters rushing over the lock. In the creek I examined a waste weir which had been driven away by a freshet, and found that no piles had been driven about it, and that the clay put in as backing had been frozen lumps, which dissolved with the first thaw, and left the weir to destruction; but had it been backed up with unfrozen lumps, it would have given way, if wanting piles. In such a place as the Twelve-mile Creek, formed of such a fine tough clay, piles and sheeting piles must ever be used to give stability to the works therein.

“ After passing the village of St. Catherine, the locks are diminished in dimensions to those for a boat canal. The reasons for this alteration do not seem very obvious. Why not continue it a ship canal throughout, of the dimensions commenced with? which dimensions are proportionable and good. There must be some private interests of individuals at work with this erroneous alteration, which I have no business to inquire into ; but, as an artist, I must say, that the canal of itself will suffer by the alteration, and the public feel the injury for many years to come. About 3000*l.* will set the matter right and make the locks as they should be; while about 18,600*l.* will build the whole of the locks, over and above what is allowed to build the small locks; or, in other words, there will only be about 20,000*l.* saved, as it were, by building the small locks instead of the large, which saving will yet turn out to be a lamentable loss.

“ In the locks now excavating up the mountain, seven of them will have rock foundations. These seven ought to be built with stone, and not wood; and they may be built at as little expense with stone as with wood, and certainly when built will be far superior. Good quarries may be opened beside them, and the porous sand-stone now exca-

vating out of the mountain, will answer well for backing up behind the puddle.—The bottoms of these locks, being full of fissures, will therefore require puddling and flagging with plank or stone. The gates of the locks are not of proper construction, the upper and lower being both alike in dimensions—this they should not be. The upper gate should not have the lift of the lock added to it: that is to say, there are ten, eight, and seven feet, as the lifts may be, extending in depth of workmanship more than there is any occasion for. The penstock lifted by rack and pinion should be adopted, and not the paddle-gate to be wrenched open by lever, as this strains both spindle and paddle, and damages the gates. The paddle-gate may do for the sluices of a boat-canal, but not for a ship-canal.

“On my way along the line of canal towards the Deep Cut, I came upon a culvert recently built. This is substantially done, but the wing walls are not rightly turned; they ought to have a batter or slope against the bank of the canal: however, as it stands, it is a fair piece of work.

“Having come upon the Deep Cut, which begins about 12 miles from Port Dalhousie, and is about $1\frac{3}{4}$ mile in length, through a swelling ridge of land, I set about the examination of the same with the

utmost particularity. I found that the excavations had been made to the average depth of 18 feet, beginning with a surface-width of about 150 feet through loamy clay, easily soluble in water, made into mud by a shower of rain, and into a stiff silt with a few hours of sunshine. A cubic foot of it dissolves by a much less quantity of water, and when dissolved has little disposition to combine; that is, its specific gravity is about the same as water, and a pool in the cut made muddy will not become clear for many days. Under these circumstances, I looked about for a stream of water to divert into the cut, and to run through its whole length, by which stream there would be little difficulty in working away the excavations to any depth: for as the stream would soften the whole bottom, the labourers would have nothing to do but to set the clay adrift in the stream, and see to guide its muddy waters into gulleys and waste places at the bottom of the cut; and such gulleys are to be found, as we have explored them. I thought of the Welland River, which, from the cut by way of canal, is about three quarters of a mile, and here any supply of water could be had for excavation. But then, finding that the average depth of the intended cut is about 45 feet, and that only 18 of it had been excavated, there re-

mained 20 feet to be sunk before the water-level could be obtained. To cut a ditch, then, this depth, the before-said distance of one mile and three quarters, the length of the cut (and no farther is required, as the canal is already formed from the Welland to the Cut,) would be expensive, even though the excavation would be included in that of the canal. I propose, therefore, to raise a head of water from the Welland by means of a pump, either wrought by horses or steam; probably horses would answer best, as after the small ditch shall have been run away by the Head Waters through the whole length of the cut, there will then be plenty of water obtained to excavate the rest of the cut without pumping. So for all the work required, I think a steam-engine not necessary, but a good horse-pump and a reservoir, which will contain about an acre of water three feet in depth.

“Had I taken another view of Nature, with respect to finding a method to excavate this cut, from the one I took, then should I sooner have satisfied myself with the result of the project proposed; and this would have been at the beautiful creeks which fall into Lake Ontario on both its sides. What has scooped them out so? every one of them seems to be a natural canal, and will be used

in no distant day for real ones. Nothing but a *stream* of water, and some one of these streams very small indeed ; but a great deal of labour may be accomplished by a small stream, if well directed. If the Welland River cannot be brought to bear on the excavation of the Deep Cut, that work will become a drawback on the others of the Welland Canal ; but I am conscious that it will answer, from my knowledge of similar works in the inland fens of England. As to the width of the cut, I consider it too wide by 40 feet on each side ; 70 feet was quite enough for its width ;—so taking the length of the cut $1\frac{3}{4}$ mile, depth say 45 feet, and this 40 feet on each side for extra width, I find that 1,232,000 cubic yards more than required will be excavated : 492,800 have already been excavated more than enough, considering the depth gone 18 feet.

“ Had I seen the cut commenced before its excavation, I certainly would have proposed that width, and a steam-engine to lift the Welland waters into a reservoir 50 feet above its level.

“ As to making it 70 feet instead of 150, my reason is, that the banks will never rest until they curve beyond the perpendicular. There is a curve of rest in Canada, which more properly should be called the *Frost Curve* : this is obvious by exa-

mining the clay banks of the rivers. The roots of the trees support the surface rim of the land, while the banks beneath are, by a succession of frosts and thaws, curved inwardly, and there they remain at rest for ages. Trees, therefore, should be planted thickly along the margin of the Deep Cut, to support the rim. The frost of Canada strikes perpendicularly, as there is not much wind in winter: on horizontal surfaces it strikes the deepest then, sloping surfaces less, and when the slant runs nearly perpendicular, the frost scarcely touches it at all. Hence slopes to the banks of canals in Canada are out of the laws of Nature, except when rocks exist, as boats sail more easily along waters confined between sloping banks, than those having perpendicular ones.

“After leaving the Deep Cut, we come upon the Wainfleet Marsh, a marsh lying between the Welland and Grand Rivers, a distance of 18 miles. This marsh is a shaking quagmire, full of rattlesnakes, and growing with spotted alder. It is proposed to drain it before running the canal through; but this I conceive would be throwing labour away, as the more of a quagmire it is, the more easily will it be excavated by running water. This marsh being impassable at the time I was there, of course my examination of it was scanty; but I

hope to be able to explore it at a future period, as also Port Maitland in the Grand River, Lake Erie.

“Mr. Barret, the resident Engineer on the works, was kind enough to conduct me through the whole, and afford whatever information was in his power. I think him a young man extremely anxious to do justice to the Works; and it is not his fault, in my opinion, if these are not properly executed. He has been blamed for making some things too strong; but these very works must be made *stronger* still, else they will not answer. I think him honest, and an advocate for substantial superstructure.

“In conclusion, you may probably consider this report severe; nevertheless, I feel it my duty to lay before you the Welland Canal as I have found it, and humbly to offer my ideas respecting its improvement and future construction, conceiving that the truth thus told cannot disgrace any one, and may in the end be the best means of promoting the welfare of Canada.

“I have the honour to be, &c.”

This Report was not very well received by the Shareholders, but they were quite unable to deny any of its statements; they would work away as

they had done, regardless of my remarks, and had the *felicity* of observing some of their *wooden locks* float down before the *freshets*, like *large birdcages*, into Lake Ontario. The frosts and thaws filled up the deep cut, with the summer excavations, and all their *berms* or benches of earth slid in.

I then proposed to the Company, to excavate the whole of this *cut* at *sixpence* sterling per cubic yard, which would save them about four shillings on every cubic yard they were then getting out. This saving I proposed to expend on their *wooden locks*, and make them more secure : but this they would not listen to. Yet, it will take nearly *three* times the money to construct it on the present system. A canal, however, will certainly be made of it by and by, in spite of *private interest*, obstinate *management*, and *perversion* of the laws of nature : but *when*, I will not take upon myself to say.

A Tunnel Lock.

Canada being full of water-falls and rapids, this engine might be well adapted for transporting boats and barges from one level to another. Let a tunnel be formed, and the lower level conducted into any depth required, beneath

the bed of the upper level: let a shaft be then sunk between the levels, equal to receive the traffic boat required for the navigation. Then if a sluice-way be formed down the head of this shaft, opening in by a curve beneath the bottom of it, having a common *gate* fixed beneath the bed of the upper level, moved by rack and pinion, this sluice may fill the lock with water, after the boat has been brought into it from the tunnel below, and the gate shut behind it. Now this lock-gate may either be made after the common method, to open with chains, rollers, and crabs; or by the *specific gravity plan* of being let down, and raised up in a wide groove beneath, which is, of course, ever full of water. This seems to be an easy method of opening and shutting gates. In the bottom of the lock, another sluice is required to empty the lock of water past the gate, so that when the lock is full, a boat may be let down to the lower level. This sluice-gate must hang by a strong chain attached to a crab at the top: when it is wished to be opened, the chain must be slackened, when the pressure will force it down, and the water pass off by the tunnel; and the boat having descended to the entrance-gate below, while the entrance-gate above is shut, the former is opened, when away she may glide through the

tunnel to the lower level. It is true that this lock will require much water ; but in a country where there is no scarcity, such a lock may be very easily constructed ; and, so far as I am a judge, may answer every purpose. The filling and discharging sluices must be formed with care : the first should have its lower end directly beneath where the boat swims in the lock ; so that when the waters are allowed to rush down from the upper level, they may create the least disturbance possible ; and the second, when they are let off, no whirlpool of consequence. The tunnel lock entrance-gate may be made extremely strong to work in side grooves, and to sink in a bottom one, by which means, if it is made so as neither to sink nor swim altogether on edge, it may be easily lowered or hauled up, as occasion may require.

The Geological formation of Canada is such, being a succession of table lands, that canals may be carried through it for many hundred miles, without requiring *any locks*, if *distance* were not to be brought into consideration. By an immensely circuitous route, they might be wound out from Lake Superior to the *oceans* on either side of it, on one great level, and have no locks except at *two places* : viz. where they were brought to the *grand descent*, into their respective entrances.

SUICIDAL MANNERS.

SUICIDE is not rare here: some say more prevalent than in England. When at the Falls of Chaudiere, a person having wild rolling eyes stumbled into the rude apartment where we stopped. He did not seem any way intoxicated with spirits, and none of us asked him any questions; only we requested he would come near the fire and warm himself, as he seemed to be affected with cold. But he took no notice of us, and soon rushed out of the door, in such a singular manner that we followed to look a little after his movements. He hurried straight towards the Falls; the soldier on guard pursued him, as indeed we all did, fearing that he meant to destroy himself; but when he observed the man of arms coming up to him, he started off as fast as his feet could carry him. On arriving at the

Petite Chaudiere, or little cauldron, he threw off his coat, hat, and shoes, and laid a small bundle he had with him on the top of them. By this time the soldier had just got up to him; he turned round, looked him full in the face, and then with one tremendous leap, plunged into the deep abyss. We all gathered round, and looked down with pity and horror at the dreadful act that had just passed before our eyes. No hopes were expressed of finding him, as we all knew this place to be out of soundings, having a communication with the great river Ottawa by a subterranean passage.

This Chaudiere is surrounded by a bench of limestone, nearly thirty feet high, and sometimes it gets very full of drift-timber, but at this time there was not a very great quantity in it. Day after day the inhabitants about would gather round and look down on the surface of the kettle, wondering at the madness of the poor creature, and the depth of the leap he had taken. While anxiously gazing thus, one evening, they saw something like the head of a human being, between two spars of drift-wood; on going down they found this to be the remains of the suicide, which were pulled out and buried in the churchyard. On examination of the countenance, several

of the people recognized him to be a raftsman, and asserted that he was sometimes in the *habit* of being deranged, although it was generally believed there was nothing wrong with him. We were all surprised that the under-current had not conveyed him to the river, through the passage above mentioned ; but, considering this more minutely, we found that it was only in time of floods that the waters hurried through the subterranean duct with such whirling fury as enabled them to wash any floating body below, and drag it through the tunnel : as we found there was never any drift-wood seen floating there in time of floods, and that if a tree was then thrown in, we should see it no more. From this we inferred, that the tunnel must open into the cauldron at a very great depth beneath the surface ; as, if it were near to it, the whirlpool would act more strongly than it did on floating bodies.

We were also surprised not to find tales of the imagination stirring, and the “ Raftman’s Ghost ” frequently seen, as is the case in some countries. But over all America there is nothing of this kind of apprehension ; ignorance and superstition are not always linked together. It is only great minds that respect witchcraft, and there are many

great scholars who know nothing about the spirit of poetry.

We had been on a visit to the Rapids of the Chats, and were returning down the Lake of Chaudiere in a sleigh (it being winter), when we saw a number of crows congregated towards a certain quarter of the shore, and thinking they might be attracted thither by the carcase of some wild beast, we turned aside to see. The snow was in the act of disappearing, so we left the sleigh by the bank, and proceeded into the thicket to which the fowls seemed so much attached. Having crawled in about a hundred yards, we found a musket and the head, or rather skull, of a human being. This roused our curiosity to a great degree; and on Mr. John Sherriff's going aside to explore, he found the whole of the body, with the clothes on, which were exactly similar to those worn by the Canadian peasantry. There was no house within five miles of the place, so we did not know exactly how to act. We took the gun with us, which was charged; and proceeded along the lake with the sleigh, until we came to the house. On telling the circumstance there, the people, we found, had never heard of any one being missing for some time. The good-natured farmer sent

away one of his sons, and another man, with a traineau for the body, and had it decently interred.

Nothing transpired respecting the name of the unfortunate creature whose body we had found until the following summer, when, telling the story to a parcel of raftsmen, one of them came forward and said, that "about a year ago, as they were rafting down the lake, one of their hands, a Canadian, went ashore to shoot pigeons, and they never heard of him more." On making farther inquiries, he observed, that "the chap was got weary of rafting, and his comrades suspected he meant to clear out. Towards night, they had heard a cry from some one in the woods, but, as this was got so common, he believed it was not attended to." On wondering how they could possibly become so regardless as not to answer to the cries of a poor bewildered creature, he answered, that "they could not be troubled now-a-days *with that ere business*, they had other things to look after."

Another time a person was found dead amongst the snows at the public works; and Capt. Andrew Wilson, R. N. acted the part of coroner, and delivered the following speech over the body to the gentlemen summoned on the inquest.

“Look at the corpse, gentlemen, and ask of yourselves, Has the life been taken away by violent means? have his own hands done the deed? has he been his own murderer? Examine the body, gentlemen, and see whether or not we must ascribe its death to the agency of man, or the dispensation of Providence. Consider where we are; see where we have found it; and note the amount of evidence brought before us. Here we are in a snowy wilderness, and no friend comes forward to claim it; yet it had a mother, yea, it had fond relations. Let us do our duty, gentlemen, as it becomes the sons of Great Britain;—let the truth be discovered, and let no petty interests, or matters of public ambition, nor the things which tend towards the aggrandizement of man, deter us from obtaining ample satisfaction; and if we find it hath perished by the severity of winter, let our final declaration be accordingly, and let interment follow.”

The numbers drowned in the rivers and lakes during summer, by the upsetting of canoes, are very great. The dread of death seems to sit lightly on the inhabitants; at least they value life at a very moderate rate. They will *withy* a bunch of drift-wood together, and pass a river on the bundle. Many lose themselves in the woods, and fall a

sacrifice to hunger and fatigue ; for there is not, generally speaking, so much food to be found in the forest as will support life for any great length of time. In autumn, berries of various kinds, and nuts are plentiful ; but this is not the season when the wanderers are abroad chiefly. Those ignorant of *deer-hunting* are generally the sufferers. An Indian or American will find the way out of the thickest woods ; but an emigrant, or even a French Canadian, will not. It is singular that the latter have not become adepts in this art, although used to such places all their lives. But this will not seem strange when we consider that any thing which requires reflection, they are perfectly unqualified to perform. It would, indeed, be an occurrence worthy of record, to find the Americans astray in this respect ; they seem to be just as much at home amid the thick brush-wood, without road or sun, as we are in a cleared country ; they are the best *explorers* we find, and in this respect must be greatly extolled. When they come upon a strange river, they can tell at once where it descends, the lake in which it disembogues. They hear the roar of distant waterfalls when our ears can distinguish no sound ; in short, the American has an instinct, acquired in the

woods, of a different nature from that of the Indian, yet almost equalling his in extent. The former knows where to find what his ambition pants after—a good tract of land, or a rich timber-grove; the latter, where he shall find game, and lakes full of sweet fish.

It is not common to meet with the funeral processions of either. They are considered somewhat like the “Scotch tinker and his ass,” never apt to die; for this reason, that when such an event takes place, or is approaching, they retreat into the most obscure nook, and draw their last breath, accompanied by one or two, probably, of their wandering comrades, who make no fuss about the matter, but consign the worn-out carcase as quietly as possible to the dust.

Fame after death does not seem to be a ruling passion with either; indeed, their anxiety seems to be like that of many other sages—

“ Let no stone
Tell where we lie.”

Those who would penetrate through the wilds of America, in order to discover their mysterious treasury, must accept such men as these for their companions. Without the Indian and wandering American, it were fool-hardiness to make the at-

tempt ; and whatever be the difference of manner, habits, disposition, &c., in a general sense, and on such occasions, it amounts to nothing. In enterprises of this nature we become much alike, with a strong selfish propensity to satisfy our thirst of curiosity. Linked together closer than brothers, we seek the remote dens and caves, prowl about the lonely shores, explore the gloomy jungles, creep up the unknown rivers, and clamber the hidden mountains.

THE BOUNDARY LINE.

THE complex terms in which the treaties are couched respecting the boundary line between the territories of Canada and the United States of America, are not only too cunningly involved to be easily unravelled, but such as may yet lead to serious disputes between the parties concerned. They are evidently drawn without sufficient information on one side, with knowledge and craft on the other: let us examine their nature.

Article II. of the convention between his Britannic Majesty and the United States of America, signed at London, October 20, 1818:—

“It is agreed, that a line drawn from the *most north-western* point of the *Lake of the Woods*, along the forty-ninth parallel of north latitude; or if the said point shall not be in the forty-ninth parallel of north latitude, then that a

line drawn from the said point, due north or south, as the case may be, until the said line shall *intersect* the said parallel of north latitude, and from the *point* of such intersection, due west along and *with* the said parallel, shall be the line of demarkation between the territories of his Britannic Majesty and those of the United States; and the said line shall form the southern boundary of the said territories of his Britannic Majesty, and the northern boundary of the territories of the United States, from the Lake of the Woods, to the *Stony Mountains*."

Now where is the use of mentioning the *forty-ninth parallel* at all? are not *all* parallels of latitude, *parallel* to one another? And as to the *line of intersection*, so gravely introduced, what can be the object of it? As far as the geometry of the matter is concerned, there can be none; it is merely an attempt to quibble with mathematics, to smother it with words; a plan which will never do. The truths or fallacies of that science are self-evident in an instant,—and the parade, therefore, about the *forty-ninth parallel* and *line of intersection* is a species of wandering, such as is seldom offered to the descendants of Euclid.

The *point* from which the parallel is pro-

posed to form the boundary line, is stated in the article. So when the *latitude* of this point came to be ascertained; the parallel, of course, was had at the same time, without any reference to the forty-ninth, and line of intersection, due *north* or *south*. But even this *point* is attempted to be made obscure by the expression, that it is to be the *most north-western point* of the Lake of the Woods. It is supposed, that if the *north* or *south* point, or even the west, had been taken, any of these would have been much too plain, and too easily understood. The *north-west point* is also considered *rather* plain, though a more uncommon *rhomb* than the others, and the *most north-western* added. All this is diplomatic cunning of no common order.

The very able German astronomer, who was sent by the Government of Great Britain to ascertain this famous *point*, seems to be somewhat confused with the singular term, *most north-western*; and, I have no doubt, but that thousands yet will be confused with it in the same way. Every year this *point* will become of greater interest. Judge Fletcher, a gentleman in Canada fond of philosophical investigation, would argue the thing to be impossible, and say, "A line might be as justly drawn from the *month of August* to

the *Rocky Mountains*, from a *term in time* to a *point in space*;" but this we will not allow, and would argue the thing to be possible, thus:—

Let the *Lake of the Woods* be fairly surveyed, which, as far as it has been explored, is somewhat of an oval shape, about fifty miles by forty, full of little islands and bays; and let it be charted on paper to a large scale; let no *bay* or promontory be excluded, and all the rivers and brooks which fall into it faithfully laid down, with the exact places marked *where* they fall into the lake; for *arms of the Lake* may be mistaken for the *outlets* or *mouths* of these rivers, which may materially affect the fixing of the *point* in question. Let the variation of the compass, moreover, be accurately known, and the lake inclosed in a parallelogram, the east and west sides being drawn, of course, duly parallel to the meridian. Next let the centre of this figure be found, the which point being where the diagonals drawn from the opposite corners intersect each other. On this point describe a *circle*, which is *setting the compass*; draw the north-west rhomb, and where that line runs ashore in the lake, whether afar up an inland bay or against an headland, it is the most north-western point of the same:—where, probably, *Thomson's Monument* stands. For this was con-

sidered such an important point, that the chief astronomer's assistant, Mr. Thomson, built his monument here. He determined his *point* by *astronomical observation*, and found it to be latitude forty-nine degrees, thirty-seven minutes north; longitude ninety-four degrees, thirty-one minutes west, about 1600 miles from Quebec, by the line of rivers and lakes. This he ascertained in 1798.

But after all this has been done, we find, by reading the *article of treaty* over again, that there is ~~another~~ *point* agreed to besides this one in the same article;—namely, the point of intersection with the parallel of forty-nine, by the due *north* or *south line*, as stated, drawn from that we have just been finding. Thus the matter stands: Whether is the “boundary line the parallel of the forty-ninth degree of north latitude;” or the “parallel of the most north-western point of the Lake of the Woods?” Deponent saith not.

The Americans will doubtless endeavour to hold by the latter, and we by the former. The distance between the points will be about eighty miles, and the length from the Lake to the Stony, suspected to be the *Rocky Mountains*, is nearly 800 miles. Here is 64,000 square miles of valuable land, in the *market of dispute*.

It is perfectly easy for those qualified to judge, to see the meaning of all this quibbling; the Americans were well aware that the Lake of the Woods was situated farther *north* than the 49th degree of latitude. Their celebrated travellers, Lewis and Clark, had penetrated into the Wilderness of Missouri and Rocky Mountains, many years previous to the treaty of London; and although they probably never saw the celebrated Lake of the Woods, still they could have a shrewd guess respecting its latitude, from the *dividing height of land*. There is even something meant by *stony*, instead of rocky, as no such mountains are known in these regions by the name of the *Stony Mountains*; and if the name has been changed, which I think it has, this will enter the said *market* again, and *Stony Mountains* be pointed out, very far, perhaps, to the eastward of the *Rocky Mountains*. Such, doubtless, has been the intention; and if no mountains of that name be found to exist, as we are pretty certain *none do*, of course *our boundary* makes a halt at the celebrated Lake, and so we leave the amazing extent of Assiniboins, the Vale of the Columbia, and, in short, the whole of the north-west territories, to the mercy of the Americans; and although, in the

mean time, we may be no great losers, still it is insufferable to be laughed at.

It is the term *height of land* which is debatable at present between *New Brunswick* and the *State of Maine*, referred to the decision of Russia; and here, too, they may get the better of us by vague expression. We may amuse ourselves with the language they converse in; but it would seem they understand ours better than we do ourselves. The height of land, or as it is pronounced in America, *heighth*, is better known in that country than in any other; it is the dividing ridge of land between the sources of rivers. This ridge is generally of no great height. The great rivers which fall into the Atlantic by the Gulfs of St. Lawrence and Mexico, those which descend into Hudson's Bay and the Pacific Ocean, have sources nearly together, afar in the interior, and might be easily connected. Now we confound this *height* with rising ground, and consider always that the *grand height* must be a *mountainous range*, as in Europe. It is true, that, in the regions of the north-west, mountains of considerable magnitude are to be met with, and rain is more prevalent on that account; but generally speaking, the continent of North America can boast of

few elevations but these heights of land. And when we look to the lakes on either side of them; there are no heights worthy of being mentioned; seldom any of them more than 20 feet. There is a difference, however, between *rocky* and *stony*; a rock is a mass of hard matter, compact with other masses of the same kind; a stone is but the fragment of a rock, conceived to be quite detached. On the whole, this article is extremely curious; it is not got up with the simple intention of overreaching us in order to gain an accession of territory, but for various other causes. It affects the great inland navigation through the continent of America; it keeps us entirely out of the famous vale of the Missouri, and does many other things, of which those who framed it are probably aware, but which I have not penetration to foresee. "The forty-ninth parallel, to the generality of readers will appear to be the boundary line." The Americans on their maps have marked the other.

GEOCENTRIC LATITUDE.

THIS is the *latitude* which the Americans mean to abide by in their treaties, and may be the means of greatly increasing their extent of territory. Ever since Sir Isaac Newton announced to the learned world, that, according to the laws of gravity, this earth was not a globe, but an oblate spheroid, having the Poles nearer the centre by about twelve miles than the Equator, our philosophers have been busy in various ways to ascertain the fact. They have measured with the *chain*, as it were, arches of meridians in all countries, on the sandy deserts of the Torrid Zone, and snowy planes of the Arctic Wastes; and have actually found that the degrees on the surface of the earth increase towards the Poles, and diminish towards the Equator. Pendulums have been made to vibrate seconds in every latitude, constructed with

such ingenuity that the effects of expansion from heat, or contraction from cold, have been counteracted; and it has been proved beyond a doubt, that the length of the pendulum varies in every one of them, or that gravity, like the degrees, increases and diminishes towards the same places in proportion as they do. Powerful telescopes have likewise shown us, that the planets have long and short diameters, while the shadow of the earth in lunar eclipses exhibits to view its real orange figure, proving, without a doubt, that there is such a thing as *geocentric latitude*, different from heliocentric, which refers to the centre of the sun—the former to the centre of the earth.

The parallel of latitude 45° , is not a belt that rounds the Earth *exactly* between the Poles and the Equator: it is much nearer the former than the latter; but *how much* has not been yet completely ascertained, although an average struck, from the statements of the various Meridian measurers, might be considered pretty near the mark for *practical purposes*. At all events, Jonathan will be a considerable gainer of many a thousand acres of good fertile land by this ingenious *geocentric* calculation. Thus he profits by us in every way, even by our more refined discoveries in astronomy. We are studious for his benefit; we look up at the moon

or stars for amusement or information, and he instantly derives a pretence for extending his dominions. Did honest Sir Isaac for a moment fancy that, when he announced this important fact about the Poles, such would be the result? In every discovery in Art or Science that we make, the Americans have a *triple* advantage over us: first, we *think, reflect, invent* for them, which saves much trouble and expense; secondly, they avail themselves of our discoveries and improvements in the abstract; and, thirdly, in *reality*. We bustle about like active, industrious, plodding people; while Jonathan acts the crafty spy on all our actions, ever intent on aggrandising himself at our expense. The idea of mutual benefits he detests; if there is not a real advantage on his side, he will have nothing to do with it: were he to set to work as we do, then we might be a match for him. He can live comparatively easy to what we can; none need hunger in the States; and the idea of supporting wives and families gives the Americans no anxiety, as the affair is fraught with no difficulty. Their whole study is that of *over-reaching*, from the cradle to the grave; this is the *primum mobile* of their existence.

Be not, therefore, deceived, ye travellers who perambulate those parts; you will meet with few,

it is true, who will be *unkind*, or act in an *uncivil* manner to you ; were it otherwise, their character would be falsely represented : personal matters are perfectly out of the question ; they look much farther before their noses than you do.

Perhaps you are tickled with toast and coffee, and a sweet charcoal fire ; while they are reviewing the British Navy, pondering the *dry rot*, or calculating respecting the growing might of steam boats. What we call *comfort*, they care nothing about, but, for your sake, they will seem, nevertheless, to do so. But touch upon prophecies and politics, talk of schemes, of enterprise, throw out the bait of *subtle ambition*, speak coldly of England, praise their favourite leaders, in short, be what you suspect they are, and you will soon see a part of the real character.

Jonathan has often reminded me of algebra. How often have I laid the simple equation to discover the reality ; assumed falsities for facts most applicable to the terms of the question ; transposed sides, and discovered the value of x : and this character we well know in Britain. We are perfectly right, we *know him*, and all we have to do is to *watch* him. But having more *leisure* on his hands than we can command, he will continue to get the *better of us*. The difficulty is

to know his drift. What we think a great matter is nothing; and what we conceive of no value, is of the utmost consequence to him. No sooner is he aware of our penetrating his purpose, than he cautiously gives up the plot to prosecute it in another way. If we build forts on the frontier of Canada, he will build none, but will set to work to knock those down which he has built. He will keep up no *standing army* along the line of defence; he will never meet us on our own terms, and who can blame him? A part of the cash expended on the forts, canals, &c. in Canada, goes over to him; for he can undersell the Canadians in the article of provisions, which helps to clear his side of the Lakes, and St. Lawrence River of trees, improves his country, and assists him in erecting lovely villages, which are soon thronged with a dense population.

Thus we somewhat improve and fortify the States of America, when laudably attempting to do that business for Canada. They are well aware that, in the event of a war, we have no idea of taking the country from them; for if we had it to-morrow, it would, so far from being of use, only be the means of injuring us. After all, I think that we are no great losers by their proclamation of Independence; all we have to do is to check inroads and

encroachment. They have got enough from us; if we give them much more, we shall certainly inconvenience ourselves. If they have risen as a nation, we have profited by their prosperity; but when on a profit and loss account, the balance is no longer in our favour, as would appear, we had better be looking about us. Thus by geocentric latitude they mean to overthrow the present boundary line, and overleap the latitudes 45° and 49° north, getting beyond the New Brunswick "Height of Land," "Barnhart's Island," and the "River St. Lawrence."

INTERIOR DISCOVERY.

GENERALLY speaking, the discoveries hitherto made in the interior of Canada, so far as we are aware, have not been extensive. It is true, that Mr. Hearne travelled with an Indian tribe to the Frozen Sea; explored the Coppermine River, and has left us some valuable information respecting the manners of the Indian Tribes which roam that extensive tract between the Polar Sea and Hudson's Bay. Mr. Mackenzie, too, navigated a number of lakes and rivers, unknown before to any European, and reached a point on the shores of the Arctic Ocean, which has served, amongst the few points obtained of the kind, to throw considerable light on that Geographical Problem which Britain has been long anxious to solve, namely, the extent of the Arctic Sea, and a passage through the same to the eastern coasts of Asia.

It would thus be discovered that America is one huge island, having water all round it, and not joined to any of the other great Continents. But this is information of a particular kind, more belonging to Geography than any thing else. In North America we meet with many persons who have been to the Arctic Sea and Pacific Ocean in the fur-trading business. Mr. Simon Frazer, now a settler in Glengarry, Upper Canada, wandered on their coasts for years in the service of the North West Company; and I am happy to find his name on the map given to one of those Rivers that traverse the North West territory. Having met him by accident, I found he was extremely communicative respecting what he knew of those distant parts; but we always find that this knowledge refers chiefly to rivers, lakes, Indians, &c. the method of sailing canoes, and obtaining fur. Now the things we want to be told of, cannot be obtained from *fur-traders*, or from those who have merely sailed up or down the rivers. Travellers all agree that there is a sameness in the scenery; and in the same way we may easily believe that water is somewhat similar to *water* all the world over, and that only lovers of the picturesque can discriminate between the beauties of various Rapids and waterfalls; and these are the

most striking objects to be met with. One lake, for instance, may have a more expansive surface than another, and be strewed, probably, with more islands, yet, generally speaking, they are not considered other than large lakes and small ones. Then as the thick-woods spread close to the brink of the rivers, excepting when passing through the prairies or great meadows, all prospect of the surrounding country is utterly lost, being either hid by intervening trees, or by long thick grass.

Thus, then, we see that nothing very singular is to be met with in travelling the line of the waters, excepting we proceed slowly, and the nature of the soils of the banks and adjoining country, with the trees, rocks, caves, animals, &c. are faithfully investigated — we might add, indeed, every thing that may be considered interesting to the enlightened portion of mankind. All this has never been done; our sole anxiety is to pass through them like swallows; and when the *paddingers*, who work the canoes, are requested to move easily, they are quite surprised at the order, and cannot comprehend what we have got to look at. If we consider, too, that the canoes are not able to carry great store of provisions, and that game in the woods is precarious, we are inclined to

coincide with the paddlers, and perform the voyage as quickly as possible, although in doing so we may pass many much more valuable objects than those we are going in quest off.

Such, then, is the cause why we know so very little of the resources of this great country. We never examine the mountains or the lands at all remote from the main rivers or lakes; we never follow up the small streams, and explore the unknown wealth embosomed in the forest. The Indians, to be sure, bring us out rare minerals, and specimens of things which we are unacquainted with; yet we neglect to accompany them, or go ourselves and seek for them; and the task would not be very easy, even were we assisted by the civilized community to the utmost. We must therefore content ourselves to remain ignorant on this head, and allow the distant future to tell the tale. They might, however, be more easily sought for now than formerly, as the fur-trading posts on the main rivers would generally be found able to afford material assistance to an inland exploring party.

The great lakes and rivers between Canada and the Republic are now under survey by naval officers, who will, doubtless, consider them under every bearing. Captain Franklin and Dr. Rich-

ardson have passed through the country, and seen its utmost limits; but an investigation of what may be termed the interior, has not as yet taken place. We have been for many years amusing ourselves on the threshold, but have not dared to open the door. Before leaving England, we fancy there is nothing to be seen but "woods and waters." This may partly hold true, but these are possessed of combinations and affinities enough to engross a multiplicity of observations and reflections, which may add to science, improve art, and ultimately become much more valuable than we now estimate them, or are inclined to imagine.

The *Mammoth Caves* of the *Whabash*, the *Rocky Mountains*, or *Backbone* of America, the *Vale* of the *Missouri*, the *Savannahs* of *Assiniboins*, and the *Rattle-snake Dens* of the *Ohio*, deserve the utmost attention of the curious naturalist. The Americans may deal in *stretchers*; nevertheless, astrology has been of benefit to astronomy, fiction being the forerunner of truth. There are, certainly, caves on the Banks of the *Whabash*, of enormous extent, which, being faithfully explored would, no doubt, produce many new and interesting matters to science. Let the width, depth, and various measurements, be made, with the nature of the earth, rocks, and general situation.

there are plans of making these investigations with correctness. Would there were the tenth part of the labour bestowed on these caves, that there is on the catacombs of Egypt ; not only because they are the works of Nature, which the others are not, but as there are also mummies found in these, called *mammoths*, which are much more curious. These are the remains of animals deposited there no one knows when, and preserved from decay by a process perfectly unknown : some will have them to be part of the *ruins* of another world ; others, that they were animals common on the earth before the flood ; but how they came to be deposited in *caves*, can hardly be conjectured, unless they may have belonged to the savage class of animals, and died in the lodgings they were in the habit of frequenting. Let lanterns, ropes, ladders, pistols, compasses, plummets, bags, hammers, &c. be taken to the Mammoth Caves, and the whole thoroughly explored : *gravity* may receive some elucidation from it, and new *gases* be discovered ; and who knows but the theory of the earth may there be confirmed ? As to the Rocky Mountains, we know scarcely any thing about them. The Indians bring from thence quantities of silver, lead, and tin ores. They are not of a precipitous nature. Their extent ought to be ascertained, and the

sources of the many great rivers they give birth to, with their heights and minerals. There may slumber as much wealth in them as in the Mexican Mountains; and they might be worked to advantage, and transported down the great rivers to the oceans on each side of them. The sources of Clark's River, which is a branch of the Columbia, seem to be near those of the Missouri, which is a branch of the Missisipi; while those of the Saskatchewan, which falls into Hudson's Bay, are near to those of the Columbia. These *heights of land*, as they are called in America, are amusing to trace. See those round Lake Superior, with their streams, like wimpling radii of an ellipse, descending into the huge reservoir, while those on the other sides congregate in the Missisipi, Ottawa, and Hudson's Bay.

Between this *height of land*, forming the sides of the immense ewer and the Rocky Mountains, range the extensive savannahs of Assiniboins. These seem to travellers something like the ocean; no objects to interrupt the prospect but clumps of brushwood here and there in the distance, appearing like so many islands. On these vast plains the herds of buffaloes and wild horses are met with. The buffaloes are pretty shy, and not easily obtained; the horses are evidently like the

Spanish horses ; but whether they are from Spain or no, is a question. These plains continue, more or less, down the Missisipi to Mexico ; so the Spaniards there might have had their horses from the savannahs more readily than from Europe. The horse of Assiniboins is the noble animal in his native state, free from all the trammels of man and trappings of the great. The great *Vale of the Missouri* will yet become a most important State of America. Perhaps its fertility is superior to any other part of that Continent ; travellers bring out the most flattering reports.

Britain gave this wealthy vale of fifteen millions of acres to Jonathan, because she did not know there was such a thing in her keeping ; many a time she *pays* away a guinea amongst inferior coin, without any remark being made. In her estimation, this *vale* is only a *patch* yet, a trifle not worth the talking about : some thousands of years ago, it was otherwise thought of. Then it seems to have been the *Canaan* of America ; for in it are met with the ruins of *great cities*, and places that must have eclipsed Jerusalem or Babylon. What a field for antiquarians ! only *too remote*, perhaps, in every sense of the term.

The dens of snakes discovered on the Ohio are wonderful. What scene can equal that of thou-

sands of serpents infolded in each other, and all alive in one den ? The truth is certain, that many such dens there are, and many such there have been, as petrification shows. With much labour, I obtained a *nest* of petrified snakes ; not on the Ohio, but where quarriers were excavating rotten rock out of the lock-pits of the Welland Canal. The serpents are *woven* together like a mass of *sea-tangle*, and altogether form one of the richest specimens, in my estimation, that can any where be obtained.

Those extensive meadows of Assiniboins, also far in the interior, give birth, like the lakes, to many rivers, which descend into the Atlantic by way of Hudson's Bay, and into the Pacific by the great northern branch of the Columbia. The spongy nature of the deep soil of these savannahs imbibes the waters, and preserves them from the influence of the sun ; by which the great fountains receive a constant supply. Were these boundless plains composed of stiff clay, the snow thaws would foam away rapidly for a few months in spring and summer, and leave this great region destitute of moisture during the rest of the year. This enormous *sponge* is well worth the reflection of the naturalist. No trees will grow on it, which doubtless has an effect on the climate and

atmosphere ; and while it keeps rivers in constant supply, like the Great Lakes, it also affords scope for agriculture on its surface, which trees do not. While the snows dissolve, its pores continue to open by the heat ; when the cold comes on, they collapse, and thus the waters are received and expressed. I first observed this circumstance on a small beaver-meadow, which boasted of an humble spring well : little did I conceive then, that it could be safely applied to trace a cause in the laws of Nature for the savannahs of America.

Mr. Calhoun, one of the Ministers of the Government of the United States, succeeded in sending a short time ago an able exploring party to the Rocky Mountains. The result of its labours has been published in three volumes, and is remarkably interesting : the book is now common in England ; but although amusing, it is almost destitute of those great natural views that the subject so evidently requires.

Being very anxious to obtain all the old charts, maps, books, &c. that might be scattered up and down the country, in order to be informed respecting the discoveries of the French, inquiries were made wherever there was any hope of such things being found. In the Township of March, on the banks of Chaudiere, a considerable bunch

of aged maps and written documents were given me by a very respectable settler. They had been left him by a French gentleman, who had died in Montreal several years before. We were astonished at the accuracy with which the drawings and delineations of Canada were executed. They certainly are far superior to those done by our more modern surveyors. The Indian names for places were all faithfully recorded, and the rivers, lakes, and islands, astonishingly well portrayed. In a note of explanation, we found, that when the French were exploring the River St. Lawrence from the Gulf upwards, rounding an island, a bold high headland burst suddenly in view: "Qui un bic!" they exclaimed, "What a beak!" or promontory; hence the name *Quebec*. Montreal they named on account of a large mountain in the neighbourhood of the head of the navigation. This mountain is about three miles from the banks of the St. Lawrence, and is about 640 feet high. To ascertain this height accurately, various methods have been tried. Mr. Skakel, the astronomer and mathematician, endeavoured to find it out with great care, both by trigonometry and with the mountain barometer; but the heights thus found did by no means agree, nor with the dead level taken from the river. I tried

it likewise by trigonometry, (by taking angles of depression to the opposite sides of the river,) and found the result exactly according with that of the above gentleman. It has been thought that the barometer is either not such a sensitive instrument in Canada as it is in other countries, or that the atmosphere is affected differently; this, however, remains to be farther proved.

From those old maps, and from our new discoveries and diagrams, &c. it was thought that a very useful map might be obtained, showing the boundary line from ocean to ocean, with the tracks of all our travellers. But *Map-makers* tell me it *would not sell*, which I consider to be a pity. In the archives of the Castle of St. Louis, Quebec, we were told that numbers of old *MSS.* were deposited; but this is not the case. We found they had all been conveyed to France, and lodged in the "*Bureau de la Marine*" at Paris, several years before Britain became possessed of Canada; perhaps, as we are now on good terms with the French, they would let us have a look through this bureau.

It seems certain, that the head waters of the great rivers of North America are quite in the vicinity of one another, and only divided by trivial heights of land; and we are much inclined

to think that the River St. Lawrence is the largest river in the world ; its length, from the head of Lake Superior to Cape Chat, is about 2120 miles. Now the Amazon, from the bottom of the Andes, to the ocean, is, according to the celebrated Humboldt, 2070 miles. The discharge to the ocean during the year has been found to be also greater ; and the water surface, if that of the lakes be included, bears no comparison. The St. Lawrence, at Cape Chat, is about 40 miles wide, and for 100 miles up the stream from thence there are no soundings in the middle of the river. The Amazon again, at its mouth, is not so wide as the Rio de la Plata, which is given as extending to 23 miles.

PECULIARITIES, CHIEFLY OF CLIMATE.

Winter Taverns.

THE *winter roads* are not those followed in summer: those of winter, are along the edges of the frozen rivers. When the snow falls deep, before the ice has had time to freeze to any considerable thickness, the *river roads* remain dangerous all the season; because, after they have got their covering of snow, say three feet deep, the ice below cannot continue to thicken by the frost. Sometimes the weight of the superincumbent snows breaks down the river ice; the water will then rise, and be frozen, while the lumps of snow, and projecting boards of ice, appear like a sea under the influence of a squall: the river roads are then forsaken, and new ones sought for through the country.

All farmers, generally, who have their dwelling houses by the way-side, *keep taverns*; the licence not being very expensive. When the way is changed to the rivers in winter, they follow with a temporary inn, and there form an establishment on the ice. Sometimes they will remain too long in these inns after the thaw comes on, being greedy, and not removing their quarters so long as they are catching a farthing; floods will therefore come on, sometimes during the night, and sweep all to desolation. It is vain for them to anchor the house, as the flakes of ice are sure to cut away the cable, even were it chain. Whole families have thus been hurried away and drowned; and others brought out of their floating houses alive, after drifting many miles down the rivers.

Snow melting.

Snows remain in the woods long after they have vanished from the cleared country, the sand which drifts amongst the wreaths tending to promote its dissolution. We would often recommend this to the inhabitants of Montreal, in order to free their streets from snow, with which they are much annoyed every winter—to sow them with sand, gravel, or other friable substances, instead of digging into them with spades; but advice of all kinds is

heartily despised in America, whether it come from a parson in a pulpit, a parent mid his family, or an artist among those who are not artists—any thing which sounds of improvement is sure to be whistled down and despised. In very cold nights only, stars of the first magnitude are to be seen, which seldom twinkle. Large fires kindled on the ice will not thaw it to any considerable extent.

Soils.

The swamps when cleared make the best farms, and will endure a long succession of wheat-crops without being reduced. Nevertheless, the difficulty of clearing them frightens the farmers from making the attempt, until the surrounding country be cultivated. Over extensive tracks a thin layer of *black earth*, resting on beds of limestone, is met with, which is uncommonly fertile. I have seen *water-melons* growing on such, eighteen inches long, and ten inches thick. Here the *musk-melon* comes to great perfection. For some time after I came to the country, I did not relish this fruit, but afterwards became fond of it. Lime would greatly improve the old cleared lands of Lower Canada, which have been over-cropped; and quickset hedges might be introduced with much propriety where timbers begin to get scarce,

as in the neighbourhood of Montreal. Agricultural societies in the country must see the value of this remark. I have observed, that the texture of all soils over the face of the country is less palpable than those of Britain : the frosts and thaws may be the cause of this superior pulverescent quality. Clays for making brick and earthenwares may be obtained of a very valuable nature ; the genius of Staffordshire would find employment in Canada.

Mud-holes.

There are few roads, and these are generally excessively bad and full of *mud-holes*, in which, if a carriage fall, there is great trouble to get it out again. The mail coaches or waggons are often in this predicament, when the passengers instantly jump off, and having obtained *split rails* of the fence, they lift it up by sheer force. Coming up brows, they sometimes get in ; the horses are then taken out and yoked to the stern instead of the front, and it is drawn out backwards. I have seen the cattle sunk in the clay of the swamps over the backs, and much damaged before they could be released. The lofty woods, on either side of the way, exclude the sun and wind ; while the frosts and thaws make a puddle, which it takes a long time to dry.

Fossil Timber.

Much of this was found amongst the Rideau excavations; even pieces of wood about three inches thick in blocks of limestone. This wood was of a snuff-brown colour, and could never be taken out of the block without breaking it: a *stone skin* was about it, if I may use the expression; it seemed like the piece of a rusty boring-iron broken into the hole of a rock which it had been boring. Many specimens of limestone were obtained with these pieces of wood in them, which, doubtless, were there since the formation of the limestone: thus partly proving that there were trees before stones. In some specimens we found at the Falls of the Gattineau, the branches were clearly pointed out, ramifying through the extensive beds of porous marble.

Timber.

The forest trees will average eight feet growing asunder, but the *underbrush* fills up this space, which is first cut off on clearing land, and is made up into stacks, so that when the large wood is hewn down and *logged*, that is, cut into lengths and laid round these stacks in a rude pile, the fire can more readily be applied to consume them.

The best trees are in the *north forests*; the farther south the lumbermen seek their timber, the more spongy they find it. The most valuable forests are doubtless away north of the Gulf of St. Lawrence, by latitude 51° . Let them seek up the Black River to the Manicogan Lake, and raft down into English Bay. Wood of various qualities may be found on the Continent of America; but we go out of the proper latitude to seek for the best. The timber in Canada for ship-building is much superior to that of the United States; and even were their present fleet destroyed, they could not easily find materials to build another.

It has now been found, that *made masts* for the British Navy are preferable to those obtained from single trees; that is to say, if a quantity of balk be hooped together, a stronger mast will be produced than if formed of one entire piece of wood. Such an invention will agree well with Canadian timber, as large masts were extremely difficult to be found; but small trees, of a great length, and as straight as rushes, are quite common. Timber does not grow according to that law—"the thicker the higher;" for a pine girthing ten feet will hardly be found rising above one of five. The forest abounds with these lofty spars, about a foot diameter; nor are they confined to

pine, but many others shoot up in this way. Perhaps a hickory mast would be found very serviceable, from its yielding quality; or one of iron wood, for durability.

Lake Oil.

There is an oily substance, of a brown colour, found floating on the surfaces of the lakes in the warm weather; it has not yet been fairly analyzed, but is thought to be an antidote against the *lake fever*. Persons labouring under this malady may probably receive advantage by being immersed in a tepid bath, the waters of which have been obtained from a *salt spring*,—and there are plenty in the country; for it seems to me, that it is a poisonous, *fresh* effluvia, which is exhaled from the lake in the hot, still, summer weather: when there is no wind, and a powerful sun, I have frequently found this vapour annoy the organs of sense. How pleasant it is to examine into the various commodities we meet with in foreign countries! the most trifling thing is often of great value, and leads us to make discoveries we had no idea of. We often run into error by comparing and judging of what we find, with what has already been found, and drawing conclusions therefrom which are not at all applicable; the ways of Providence being too

intricate for short-sighted man to be able to trace—small is the part he knows of the wonderful universe.

Kingston Dock-yard.

This is situated on the opposite side of Kingston Bay, where the town stands. The Naval stores are filled with vast quantities of the requisites necessary for fitting out a pretty large fleet; such as ropes of all sorts and sizes, chain and hemp cables, sails, anchors, &c. The Bay is nearly a mile and a half broad, averaging twenty-five feet deep. A *bent bridge* has been proposed to be constructed across, which is a kind of bridge very common in America: it has no arches; strong logs of long, squared timber are stretched horizontally from pier to pier. These piers, I have heard, are to be formed by logs, placed vertically on the bottom, which is a smooth bed of limestone; again, that they were to be hooped, and made to contain a lump of stone in the centre. Probably, if formed of stone altogether, they would better answer the end intended; as the limestone with which the capacious naval stores are built, seems to be of a crumbling nature;—but very fine quarries have lately been discovered by Mr. Drummond, on the south shore of the Bay, opposite to Bell's

Island. The waters round the dock-yard are deep, and open boldly at once, by a small bay, into Lake Ontario. The Harbour of Kingston, therefore, whether we regard it in a naval or mercantile view, is excellent; and while we have possession of such a station at the bottom of the Lake, and Burlington (equally good) at the head, we have it certainly in our power to keep this part of Canada clear of any foe, so long as we retain our famous nautical spirit. On the opposite side of the lake, the Americans have only Sacket's Harbour, which can never rate with any of these in any point whatever.

When the ice of the lake is *glare*—that is, sleek and clear—ice-boats run about with great velocity; some will argue at the rate of forty miles an hour, and from what I have seen, this may be true. They can be steered very well, and make very little leeway; can veer about, and lie within a few points of the wind. Their construction is very simple; they resemble a skate on a large scale. Steamboats answer extremely well to navigate the lakes with. Doubtless, in the event of another war, these boats will be armed, and change naval tactics on the inland seas even more effectually than they will on the ocean.

Bleaching and Dyeing.

On the banks of the Ottawa, we meet with coarse linen, called Irish Dowlas, that gets very white when laid out to bleach, and in a far shorter time than by the rivers of Ireland; how this happens, has not been investigated. Without any chemical process, without any artificial alkalies, here we see the dingy web becoming like snow in the course of a couple of weeks. Perhaps this proceeds from the vegetable impregnations of the waters, and a powerful unclouded summer sun. Often have we thought, that if large quantities of this dowlas were brought out from Ireland, and bleached on the banks of the Ottawa, the speculation would answer uncommonly well; as the settlers, whether in Canada, or the United States, prefer this stuff for wearing to any other. No doubt, very beautiful white linen might be obtained in the same manner; but this did not come under observation, as the commodity is rare. We found the Ottawa to be the best washing water of any: the smaller rivers were not just so good; probably, however, if they do not contain such bleaching qualities, their tanning excellencies are superior. Animals drowned in these small rivers about midsummer, when the waters

are poisonous to drink, have their skins very soon freed of all hair. We were surprised one day, when going up one of these rivers in a canoe, to meet something coming floating down like the corpse of a human being; but on approaching, what was this but a large dog, that had not been in the water many days, destitute of his original shaggy coat? I often regretted that my other avocations debarred me from gaining some intelligence of these things. Dyeing, like bleaching, too, has never been inquired into: the Indians have certain methods of obtaining dyes of very rare and beautiful colours, but whether from some species of plants, barks, woods, ochres, &c. we know not. Their little baskets and canoes are dyed and painted with valuable colours; time seems to affect them but little, they retain their freshness of tint. Many of the Indians are tolerable draughtsmen, and display a tact in the art little expected. They will sometimes allow the imagination to produce animals and trees unknown to the earth. We would tell cabinet-makers, and those who work the osier, that they might receive much instruction in their business from these people: they know the ornamental wood well, and how to varnish it; and can weave the threads of bark, or leather-wood, in sundry curious

ways. The turning-lathe might be plied to advantage ; wooden bowls and jugs hollowed out, and fancifully dyed, according to the Indian mode, which infuses the colours through all the pores of the wood, *would* tell in the markets of Europe.

A variety of climate, when the extremes are not too severe, must be much more pleasant to the human feelings, than a constant uniformity of weather. Flowers, sunshine, and evergreens, throughout the year, become stale ; while we admire their various changes throughout the seasons. The Canadian is more delighted with the snows of winter than with the bloom of summer, as he has more enjoyment in the former than the latter. Vicissitudes are natural to man, they remind him of his own existence : his residence is not on the earth for ever ; his joys and troubles even serve to prepare him for that state where true Christians will find eternal happiness. Yet New Holland is praised for its *unchanging* habit.

Wool.

New South Wales has been famed for this article, but Canada would produce it equally well ; no great attention has hitherto been paid to it. The hills of *Ancaster* seem to be the finest of *sheep-walks*, and reminded me much of Teviotdale ; on

them were to be seen numerous flocks of sheep, clothed in superb fleeces. In *Plumb Hollow* are also to be met with numerous flocks of as good-looking sheep as I ever saw in Scotland. In Lower Canada, the extremes of heat and cold, to which it is subject, may, as it does, affect the growth of wool; but in the fertile dales and downs of the Upper Province, such commodity may be had in abundance, and of the finest quality. I have frequently seen their carding-mills at work on wool like silk. Woollen factories are often proposed to be constructed, and might answer very well. My friend, Mr. Fergusson, brought out with him from Aberdeen a whole set of machinery for this purpose, but has not yet set them to work. The advocates in favour of New Holland as the most suitable place in the world for Emigration, may be easily repelled with arguments in favour of Canada; and were *emigration* to any *foreign shore* a topic upon which I delighted to dwell—I could easily show the superiority of British North America to any other country Britain has to do with, in this respect. *Redundant population* is what I do not properly understand, neither am I able to comprehend the mysteries of political economy; there seems to be a working about it to pervert the order

of Nature, and invite discontent and poverty into the world ; it seems aiming to bring round results the very contrary to its intentions. If people will emigrate, they may do so, but they *shall* never be advised by me. They may rest assured that there are few places in the world like home ; but if they are determined on marching forth, yet seem doubtful which land they shall steer to, I would say, *go over the Atlantic*, not away beyond the Cape. They will not get *very rich*, it is true, go either way ; but the one road is nearer than the other, a living is obtained as easily, and the climate is just as good, if not better ; they will find food and clothes in both ; plenty of land for any purpose ; and very likely, *graves* in it at the last : so what more can be reasonably expected by leaving Britain ?

SKETCHES OF MANNERS AND AMUSEMENTS.

PEOPLE who live on the banks of the St. Lawrence, between Montreal and Quebec, consider that steam-boats do more injury to the country than good ; for had passengers not the advantage of them, they argue that the land-roads, coaches, and taverns, would be in greater request. " Every one for self," in this world. When the Rideau canal was proposed to pass through a certain gentleman's estate, he seemed very angry, exclaiming, he would not allow his farms to be cut up and mangled, even for the King himself; and when quarriers came about his property looking out for rock, to obtain building-stone from, he ordered them off his lands with considerable fury. Now all this was done for the mere purpose of raising the value of his farms ; for when this part of the line came to be narrowly examined, it was not

adapted for canal purposes, and so was rejected. This displeased him more than ever; he raved and stormed, "that we had ruined him by not permitting the canal to pass through his farms, as he had laid out villages, and sold *lots* to people, on the sure expectation it would be cut where first it was intended, being quite certain it could be taken nowhere else."

And another, because it was not carried in the river beside his *barn* and *store*, would not speak to me for a couple of years.—They have, in general, singular ideas: it was impossible to make them feel any thing like contentment; and if money could not be had to pay for every thing instantly, the most abusive tongues were instantly let loose against us.

In travelling through the country in Upper Canada, amongst these Anglo-Americans, we had to deny having any connexion with the British Government; for if this were known at any time, we were utterly fleeced, and charged for every thing at an enormous rate. They conceive that it is quite impossible to "have enough;" yet what is singular, they will never do a kind action, nor offer a wish to treat one well, in order to "have" this "enough," that their heart burns for. If they cannot obtain it by impudence of the most

unblushing kind, they will never attempt it by modesty and politeness.

Man is the only animal, the only object to disgust us with the lovely regions of Canada; were he as we find him at home, who would dare to say a word against the country?

The amusements are few, and of the rudest kind. Sometimes they will have *balls*: on notices being placarded up and down the woods, the settlers, young and old, male and female, flock to the place of *rendezvous*; dancing, drinking, smoking, &c. are kept up for several days; much obscene conduct is beheld, and vulgarity of the lowest and most brutal kind.

I have been with a peasantry, where the exalted feelings of our nature thrilled with indescribable pleasure, amid beauty, music, and virtuous merriment; but, alas! where female charms lose their sway, where melody is unknown, and where all abominations (instead of being detested) are admired, such scenes can produce nothing approaching to delight.

By-town is the only one in Canada regularly incorporated by *charter*, according to an *act* of the inhabitants themselves, sanctioned by a justice of peace. The officers consist of a *provost*, two *baillies*, dean of guild, treasurer, ten common

councillors, surveyor-clerk, two deacons, and a convenor. They were the means of greatly improving the place, by keeping the streets in proper order, abolishing houses of bad fame, inflicting odium on culprits, &c. &c. This act, when it became known over the country, created some laughter, which soon died away, when it was considered that several thousand people meeting afar in the heart of wild woods, required something of the kind to keep things in order. As this place is not overrun with Americans, it may probably turn out a moral, well-behaved town, and afford a lesson to its neighbours.

[Extract of a Letter to a Friend.]

“ACCORDING to agreement before leaving home, the following letter is now transmitted. It may not give you all the information you long for, neither may it represent scenes in this country as you would have seen them, had you been with me. The views of travellers necessarily differ; they are represented exactly as they appeared to me, and this is all you can reasonably expect. You will meet with nothing here exactly the same as on your side of the ocean; the woods, fields, sky, &c. all differ. The very stones are not like those of England; and one would suppose a bit of flint

or grey granite had not much room to alter greatly in texture and appearance, but it does. The grass is not of the same colour ; even the very sun-beams are not as I have felt them. The weather is at present accounted very warm: the merchants bustle about the streets and wharfs with large broad-brimmed straw-hats on, but very few ladies are to be seen walking. The Indians have come down from the distant wilds to receive their annual presents from the British Government; they are a philosophic-looking tribe, and seldom laugh ; the men are tall, strong, and, generally speaking, have on clothes something like those of Europeans. The females seem always in that kind of morning-dress common in the country parts of Britain, and usually worn by hay-making lasses. They have no caps, nor any thing on their heads but nature's covering of strong black tresses. They wear a profusion of rings and ear-rings made of silver. Some of the females are very good-looking ; and we soon see that all those whom our eyes find pleasure to dwell on, are beloved by the gallants of their own nation ; thus partly proving, that female charms are universally admired all over the world. We were often told, that an Indian selected that girl for his wife who seemed best able to endure hardship, drudgery,

and fatigue ; but this, we believe, is not sound doctrine : he falls prostrate before the shrine of beauty, like any other honest man, and clasps those to his bosom who most affect his heart.

“ The sun flings a curious glare of light over the forests and waters, so strong that the eye is loth to look upon them. Every morning we think that the woods assume a different hue ; and there is some extraordinary process of colouring going forward with the action of light on vegetables. We can never get above the woods on the top of any mountain, where we can look down, as we would wish, on this great ocean of budding leaves.

“ The towns are full of shops, or what are called stores. A brisk trade is kept up with the United States, and the shopkeepers have all the manners of the Americans. It is their interest, doubtless, to flatter them, so to get as many good bargains out of them as possible. The provisions come chiefly out of the Republican territory, which are generally paid for in hard cash. The barter system does not go on as we suppose ; your manufactures are disliked, and others preferred, not half so good.

“ Notwithstanding the numbers of lakes and rivers which abound in Canada, and all the intensity of the winter frost, still the game of

curling, the great ice amusement of Scotland, is unknown. There was a curling club formed in Montreal some time ago, but it seldom attempted the game. The weather is too cold even for the keenest curler to endure; and the ice is generally covered very deep with snow. The "curling-stones," if I may use the expression, they have constructed of cast-iron; but as iron is a great conductor of heat, they were not found to answer well, as they stuck into the ice. The surface of the lakes, too, is never what a person knowing the game would call true, that is level; let no Scottish emigrants then, as heretofore, conceive they will be gratified with plenty of this amusement. Thus, it does not follow, that where there are plenty of men, water, and frost, there will be curling.

"I may here remark, that the frost is sometimes so keen, that it may be used to advantage in quarrying rocks, instead of gunpowder. Let the holes be bored through the strata, then filled with water, and left to remain so overnight; in the morning the stones will be found split.

"The particles of snow are not the same as we have in Britain; they are much more regular in form. On minute examination, they seem like so many little hexagonal stars. Thus, in honey-

combs, basaltic rocks, and drops of snow, Nature displays the regular six-sided figure well known to the mathematical world.—The clouds are neither so plentiful nor so beautiful as we find them at home. They are seldom seen to tower in fleecy grandeur, displaying a lovely profusion of strong colours. There is a sameness in the face of the sky, which may, probably, affect the hues of the forest in the same way. It is supposed that poetical objects are rare in America ; this may probably be the case, as regards the fine features of Nature. Moonlight scenes have but little interest, and flowers are not plentiful, which may partly account for the scarcity of the poets ; but we conceive that the great cause of this scarcity proceeds from another source.”

HUDSON'S BAY COMPANY.

THIS is a concern of very old standing, as most people know, having been chartered by Government in 1662. It trades chiefly, if not wholly, in fur, which, being gathered in the wild regions of Canada, is shipped at a place called *York Factory*, *Hudson's Bay*, and carried to London. On all the rivers which intersect those immense territories, the Company have established what are called their *Posts*. These are houses built for their clerks and *voyageurs* to stop in and purchase skins from the Indians. Such posts are generally built at *portages*, the better to intercept any canoes that may happen to pass up or down the rivers; these *portages* being carrying-places past rapids, or isthmuses between lakes; that is, places where voyageurs, who are people that manage

canoes, have to *carry* them and their cargoes overland on their backs and shoulders.

It is really surprising to see with what rapidity a laden canoe will pass one of these portages, even supposing it to be a couple of miles in length, and many of them are much more. The voyageurs, who are chiefly Canadians, fix the *pieces* on their backs with a thong of leather, a broad piece coming over the head, against which the brow leans; and away they go at a *half-trot* along a very rugged footpath, as the *paths* of the portages generally are. No one takes any pains to gravel them, or lop down the exuberant branches that in many instances choke them up till it is difficult for a common eye to tell whether they have ever been used for paths or no. Five or six *pieces* are generally the load for each voyageur, one of these is about as heavy as a six gallon keg full of rum; and such *kegs* are common in all the *up-going* canoes, but dry-sucked in the return ones.

The Indian tribes being those that procure the whole of the skins for the Company, are chiefly repaid for the same in rum, tobacco, guns, gunpowder, blankets, and trinkets. The Indian, though a grave kind of a gentleman, nevertheless has a good deal of *go* about him, as is said in England of those who *cut a swell* and swagger

about with gold chains, rings, and quizzing-glasses. He is very fond of glittering metals, and is a great connoisseur in ear-rings, buckles, and bracelets; and when a husband is this way inclined, it is not likely that his wife, the Squaw, will be much behind him in her way, as to what she considers to be the tip of fashion.

Some of the Indian females dress very elegantly, and display many very bewitching charms, which Nature has given them, to much advantage. It is, therefore, not to be wondered at, if the clerks of this great Company, who are generally from the Highlands of Scotland, or the Isles of Shetland, should, in many instances, espouse such delightful girls. Many of those whom we have seen, are extremely handsome, almost as fair as Europeans in complexion, with features divinely moulded, and affections as ardent as the girls of any country. They are extremely quick at catching the import of signals. The language of love, indeed, may be said to be universal, and perhaps understood by all nations: but the Indian girl is a linguist much beyond all this, for it is difficult to disguise from her a single movement of the mind. You can speak, and she can as distinctly answer you, as if you had been bred up in the same family together.

Nor are they averse from making matches with the Highlandmen ; and as Donald studies number *one* at the same time, he mostly selects the daughter of a chief, and then, of course, as far as his influence extends amongst the tribe, the clerk and the Company both benefit themselves by the marriage.

There is one thing, however, that I deprecate in this intercourse : when a clerk becomes a shareholder, which he does if he lives long enough, and behaves himself,—he sometimes forsakes the wilds for civilized society, leaving his faithful partner behind him. This he does not do for want of affection, for it keeps a hold on him as strong as nature itself ; but from the idea that he may be sneered at by the world if he has an Indian wife. —False delicacy ! There is not any civilized society in the world, be it ever so given to punctilio, to which she would not be an ornament ; and therefore she could never disgrace her husband.

The animals from which the Indians chiefly obtain their furs are, the black, silver, and grey fox ; beaver, otter, mink, martin, musk-rat, racoon, wild cat, &c. ; also the deer, bear, and buffalo. Some of these they shoot with their rifles, others they lay traps for, and many are caught by stratagems only known to the hunters

themselves. I lament that these animals should be thus destroyed in order to furnish fashion with a luxurious article of apparel ; were they like the sheep, and could be annually shorn, then, indeed, I might take a laugh at the fox or bruin bound down to be dismantled of their shaggy coats.

The fur animals are absolutely becoming scarce, notwithstanding the enormous space they have to breed on. None of them are very prolific in their natures ; and it is a truth in natural history, that the more a race of animals is pursued by the avarice of man, the more the beasts themselves seem to assist in their own extirpation. The few that are left get melancholy in their haunts ; the beavers leave their dams, and betake themselves to the banks of solitary rivers, and live, as the Indians report, *old bachelors*. If the fox and wolf have to howl out the night without meeting with comrades, they begin to lose their appetite, and, indeed, would require Abernethy's *blue pill* to set the digestive organs in order.

The -Company, therefore, ought to let them alone for two or three years, to preserve *the game*, as it were ; yet this they cannot well do without breaking up altogether. What would the ladies do for want of muffs and tippets ? And if they did

leave off, there are plenty of *poachers* who now understand the trade, and who would trap and shoot away so long as a skin could be had.

It therefore seems evident to me, now that the New York Company has stepped, as it were, into the shoes of the celebrated North-West, overleaped the Columbia, clearing the country before them, whether the furs of the beasts are in season or out of season,—and that also, as the Russians, all along the coasts from Bhering Straits to Nootka Sound, and as far inland as the Rocky Mountains, have been busy for a long time past in obtaining sufficient fur for the Muscovite and Chinese markets,—there will not be a bear left to growl in all these extensive tracts in the course of a few years. Now this is to be regretted in many points of view: not only will it deprive the ladies (our dear favourites) of one of their tasteful set-offs to their robes, and the Company of what I suppose may have been a lucrative branch of commerce; but also deprive the naturalist of the pleasure of beholding one of his kingdoms, being thus almost subverted by man.

There is not an animal created on this earth but has its use, although we are so blind in some cases as not to perceive it. Thus, by destroying

the foxes and bears, the wasps and wild bees have so increased, that we are now unmercifully stung by these insects in the wilderness; and those fish which used to be destroyed by the otter and muskrat, are left to die and stink in the marshes and rivers, so that the waters become impregnated with far more disease than they were formerly; the order of things being thus disturbed by the destructive and rapacious furriers.

It was a habit with these Companies to withhold information from the world; but travellers have now penetrated through their hunting-ground, so that the chief mysteries of their trade are exposed. If the clerks at the posts had kept journals of all they saw, and all they were made acquainted with, some curiosities well worth hearing might have been the result. The Hudson's Bay Company's *Clerks*, however, are just like those of any other *firm*,—acquainted with their *own business*, and neither know nor care much about any thing else. What business is it of theirs to pry into the nature of *snakes' eggs* and *wasps' nests*? plenty of *skins* is their look out,—something to tell in the *books* of the office in Fenchurch Street, London.

I have had long conversations with many of them during my sojourn, and ever found them kind and obliging: they are much devoted to

the interests of their business; could talk of rivers, posts, portages, and canoes; but knew very little about those wild regions they lived in, or of a thousand other things about which we were anxious to inquire.

The British Government would find it beneficial to *protect the trade*, and keep all poachers off the hunting-ground. This would not be a difficult thing to do; it might be done for 1000*l.* and be the means of adding 10,000*l.* to the revenue. One company ought to be allowed to monopolize the fur-trade; if this cannot be allowed, it will certainly be ruined ere long; and if managed as it ought, it would be the means of increasing the prosperity of this mercantile nation, and healing the wounds which civilians have already inflicted in the Indian world.

The enterprising Earl of Selkirk did much good to this Company; and had that nobleman been spared to put all his schemes into execution, the whole of North America would have felt their benefit. His colony on the Forks of Red River continues to thrive, in defiance of all the obstacles thrown in its way. There is not a more singular settlement in the world than it is, situated nearly 2000 miles in the heart of a wilderness, in the midst of the extensive *prairies*, or meadows of

Assiniboina. It ought to receive every encouragement: the lands are fertile, and moreover not buried in forest. The time will come when it will be a most important station; a garden, or *garnell*, to supply the inland trade with provisions, a nucleus that will continue to spread. It is, however, according to the boundary line, on the side of the American States. The British Government will therefore, in justice, have to make good to the Selkirk estate whatever damage may accrue to it by thus excluding the *Settlement of Fort Laprairie* from its territories. The line of geocentric latitude, according to the treaty, extends much farther north than the Forks of Red River; in fact, it includes nearly all the splendid savannahs and prairies of Assiniboina. His Lordship's views of the fur-trade, and Canada in general, are perfectly just; and I have often been much astonished to think that a Peer of this realm should have, on any account, encountered the arduous perils and privations he must have undergone, in order to obtain that knowledge of the wilderness which he possessed.

ARCTIC CURIOSITIES.

I OBSERVED one morning, from the brow above the harbour of Montreal, the cargo of a small sloop being disloaded, which seemed composed of some kind of fish, but, on going down, it proved to be seal-skins. I found the master very intelligent: he came with me into the inn, and had breakfast. He had brought the skins from Newfoundland. The seals there, he said, were very numerous, and could be obtained with very little trouble; that plenty of white bears arrived on the ice-flows every year; that they came down to Newfoundland from the Pole in a very famished state, but were very difficult to kill. He had seen many bullets fired at one, point-blank distance, without taking effect; he even avowed that the balls had been seen to slant off their thick coats flattened in shape. The cubs were fond of their

mothers, and would swim after their dead bodies as the sailors dragged them after the boats; they would attack very readily, and were never seen to fly with fear. When a blubber-fire was set a-burning, they gathered round in great numbers, and held up their noses, snuffing the savoury breeze. When a man came upon them unawares, the best thing he could do in order to save his life, was to keep bawling out as lustily as ever he could. A messmate of his had been caught in this trap once, but being a famous *swearer*, he hardly let one oath wait on another, vociferating loudly at the bear, which kept the savage at bay, until he rescued his companion from the perilous situation in which he was placed. These animals have dens amongst the icebergs, and delight to lie and bask in the sun sometimes. They have a singular manner of catching them with a snare: a noose is laid down on the ice horizontally, and a broiled seal put within it: this is almost immediately surrounded by bears; the rope is then drawn, and the bear being caught by the legs, is brought round the capstan, and the animal hauled aboard, growling and roaring in a frightful manner. All this was information to me; but those who are in the habit of visiting the Arctic regions, have doubtless beheld all these scenes, as

the captain said they were very common. I told him of a seal I had met with in one of the inland streams of Canada, above eight hundred miles from the sea, and far above many very wild rapids. He wondered how this had got up, as he did not consider them clever at stemming currents, which made me wonder likewise. The walruss was, he reported, very dangerous. He was in a boat once, when they *flipped* near it, and tore the vessel in pieces with their two great fore teeth. He had been in Davis Straits frequently, at the whale-fishing: there are no trees on that coast, but plenty of eagles and spruce partridge. When the whales that have been harpooned dart in beneath the ice, the sailors jump out of the boat on to the ice-floes, and allow the boat to be dragged below by the huge fish. This is a very dangerous jump, and many of the sailors are drowned between the boats and the ice. When the whales drag down the boats, they soon become fatigued, and come up again. The whirlpools on the coast of Norway sometimes engulf the whalers; the sailors believe the waters rush through from one side of the globe to the other. In proof of this, they avow that a whale, which had been harpooned, broke away from its pursuers, and went down the Maelstroem; three days afterwards it was

caught in the South Seas, with the identical harpoons sticking in its carcase, well-known by the maker's name stamped on them : the three days were proved by the dates of the ships' journals. How far all these things may be true it is difficult to say ; we will in the mean time, however, not condemn, as this would put an end to research. The captain, according to his statement, had been as far north as the latitude 84°, and could have gone farther, the sea being quite free of ice. If there had been a steam-boat with them, he seriously thought that it might have gone to the Pole.

UNITED STATES CANALS.

THE greatest of these is the Erie Canal, commenced in the year 1818, through the spirited exertions of the late Governor of the State of New York, De Wit Clinton. It opens a communication from New York to Lake Erie, a distance of nearly 600 miles. Lake Erie is 564 feet above the level of the waters in the Hudson River, as laid down by the American engineers; but I do not think it can be so much, knowing the difference of level between this lake and the tidal waters of the St. Lawrence, with the rise of the tides along the coast of America. From Lake Erie to the Hudson River, the distance is 353 miles; the number of locks are 77: the expense of this great work was about five million dollars, and was finished in 1825. The locks are 70 feet long by 12 feet wide, able to admit the passage

of barges of 20 tons burthen. The expense of transport, tolls, and every thing else included, is about one shilling per ton from New York to Lake Erie; but this has been so variable, that nothing has been hitherto exactly fixed.

Before this canal was begun, it was supposed that, by *tapping Lake Erie*, the waters could be conveyed to the Hudson, or New York;—but this was found to be impracticable; for, after bringing it from Buffalo Creek at the Lake to the Seneca River, a distance of 136 miles, the fall was found to be 194 feet, requiring 25 locks. And then to get into the Scholastic Creek, which trended away to the Hudson, they were compelled to rise 48 feet, and part with the waters of the Erie for those of the Oneida Lake.

Mr. Geddes, one of their ablest engineers employed, succeeded remarkably well in obtaining long levels, without the intervention of locks. Along the ridges on the banks of the Genesee River, much ingenuity is certainly displayed. However, I think that dams have been greatly overlooked in many places, which would have saved enormous long cuts through the woody country; but the Americans are so fond of land, that they cannot consent to drown an acre of it with water. The canal was chiefly excavated by

Irish labourers, for the Republicans will not work with spade and shovel. They cleared the trees away, however, with the hatchet, and excavated considerable portions with horses, ploughs, and scrapers. The width of this great ditch is nearly 30 feet; it has a bottom commonly of 20 feet. Had dams been more regarded, embankments would have been in many instances dispensed with; for these are very often requiring repairs. The depth of water preserved is nearly four feet throughout the whole extent; it has opened up an enormous tract of country, some of which is uncommonly fertile. The great vale of Genesee furnishes the best wheat in the "Union," and in great quantities; flourishing villages are numerous along the line.

Rochester may now be called a town: it has a very good aqueduct over the Genesee. But the best piece of workmanship on the whole line, is the Locks at Lockport.

This was superintended by an English mason, a Mr. Horn. Many Americans attempted to recommend themselves at the Rideau, by saying that they had built the works at Lockport; but when Mr. Horn's name was mentioned, they held their tongues. He was the first mechanic that appeared in the States who understood heavy

masonry ; and after the Republicans had obtained a smattering of his valuable art, they attacked him with such scurrility, that he was obliged to seek his own honest country again,—the only one in the world where true merit meets the reward it deserves.

When they found we understood this affair, they seemed ashamed,—an appearance they seldom assumed.

A canal, to join this one with Lake Ontario, is now nearly finished. It is called the “ Oswego Canal,” and is carried down the vale of the Seneca River. I have not heard its exact distance, but that seems not much more than 40 miles ; the difference of level, according to my own calculations, is about 140 feet.

The Ohio Canal is now nearly constructed. This will communicate between Lake Erie and the River Ohio ; and as the Ohio is a branch of the Mississippi, a navigation of inland extent will be opened of many thousand miles. A boat may go from New York to Lake Erie ; from thence to New Orleans in the Gulf of Mexico ; and when the Rideau and Welland Canals are finished, she may go to Quebec. Thus Lake Erie will soon have three great communications opened with the

Atlantic Ocean, but that with Quebec will be superior to them all.

The canals now constructing in Canada have led the Republicans to conceive that their "Back Settlements" will look to them, in order to convey their goods to market, or hold a communication with the ocean: to obviate which, another canal has long been proposed, and now, I hear, has been put in operation; namely, to proceed from a branch of the Ohio, over the Alleghany Mountains, to a branch of the Hudson, or some other river in close conjunction with New York. But even were this to be effected, even suppose they are able to "lock the Alleghany,"—a thing considered doubtful, there being no water to any extent amongst these mountains,—the Quebec route is the much more commodious one for the Back Settlements. It is, at once, the nearest way to the ocean by several hundred miles, and will be cheaper in every respect; Nature having given the decided preference to the great line of the Canadian waters. But to "lock the Alleghany" is considered a Republican doing equal for boldness of conception, and sublimity of engineering thought, to that accomplished of "tapping Lake Erie."

EMIGRATION.

TRAVELLERS in general have set their faces against *poor people* emigrating to Canada. There is nothing in which I am more willing to coincide in opinion with them than in this. Food is not to be had there merely for the eating; it requires considerable exertion to make a living, as it does in almost every other place. Neither is employment readily obtained; a common labourer can find nothing to do for almost six months in the year, until he has learned how to wield the hatchet. He may then find employment in the woods; but it takes an Irishman a long time to learn the art of the hatchet, if he has been used chiefly to spade and shovel work, which is quite a different kind of occupation. When he first commences hewing down trees, he often hews them down upon himself, and gets maimed,

or killed ; and if he attempt *squaring*, he cuts and abuses his feet in a shameful manner. The common people of Ireland seem to me to be awkward and unhandy. What they have been used to they can do very well ; but when put out of their old track, it is almost impossible to teach them any thing. A *Glasgow weaver*, although not bred to spade and pick-axe, as they are, makes a much better settler, can build a neat little house for his family, and learn to chop with great celerity, so that in a short time nobody could suppose that he had been bred amongst *bobbins* and *shuttles*.

It is a singular fact, too, with the Irish, that if they can get a *mud-cabin*, they will never think of building one of wood. At *By-town*, on the Ottawa, they burrow into the sand-hills ; smoke is seen to issue out of holes which are opened to answer the purpose of chimneys. Here families contrive to *pig* together worse even than in Ireland ; and when any *rows* or such like things are going on, the women are seen to pop their *carrotty polls* out of the humble doors, so dirty, sooty, smoke-dried, and ugly, that really one cannot but be disgusted ; and do what we will for their benefit, we can obtain no alteration. If you build for them large and comfortable houses,

as was done at the place above-mentioned, so that they might become useful labourers on the public works, still they keep as decidedly filthy as before. You cannot get the *low Irish* to wash their faces, even were you to lay before them ewers of crystal water and scented soap : you cannot get them to dress decently, although you supply them with ready-made clothes ; they will smoke, drink, eat murphies, brawl, box, and set the house on fire about their ears, even though you had a sentinel standing over with fixed gun and bayonet to prevent them.

Living then in such a manner, what must the consequence be in a climate such as Canada ? It is bad in Ireland, but there it is much worse. They absolutely die by the dozen, not of hunger, but of disease. They will not provide in summer against the inclemencies of winter. Blankets and stockings they will not purchase ; so the frost bites them in all quarters, dirt gets into the putrid sores, and surgical aid is not called in by them, until matters get into the last stage. In summer, again, the intolerable heat, and the disregard they pay to their health, by living as they do, and drinking *swamp waters*, if there be none nearer their habitations, instead of spring or river water, bring on malignant fevers of all kinds.

It is my opinion, that one-tenth of all the poor Irish emigrants who come to Canada perish during the first two years they are in the country ; and when they will not amend their ways of their *own accord*, there are few will be found alive after being five years in the country. Out of one hundred grown-up persons, and two hundred children, the mortality bill will run nearly as follows:— First year, five of the former, thirty of the latter ; second, eight-and-forty ; and at the end of five years, only fifty of the children will probably be found living, and twenty of the grown-up people. On the public works I was often extremely mortified to observe the poor, ignorant, and careless creatures, running themselves into places where they either lost their lives, or got themselves so hurt as to become useless ever after. Some of these, for instance, would take jobs of quarrying from contractors, because they thought there were *good wages* for this work, never thinking that they did not understand the business. Of course, many of them were blasted to pieces by their own *shots*, others killed by stones falling on them. I have seen heads, arms, and legs, blown about in all directions ; and it is vain for overseers to warn them of their danger, for they will pay no attention. I once saw a poor man blow a red stick, and hold it

deliberately to the *priming* of a large shot he had just charged. I cried out, but it was of no use. He seemed to turn round his face, as if to avoid the smoke; off went the blast, and took away his arm, and the half of his head: he was killed in a moment. As the blocks of stone fell, one of them broke the leg of another poor man, who knew nothing of such a shot being fired. At length we got the matter so systematized, that a number of shots were always prepared to be *fired* at once; a person stood at a distance, and kept blowing a horn, so that all the quarriers got out of the quarry to a respectable distance before the mine was sprung.

In spite of all precaution, however, they sometimes *returned* too soon, before some of the *lazy shots* had exploded, and so met with serious accidents; and there always will be accidents taking place which cannot be foreseen. A very skilful overseer, of the name of Charles, would try an experiment on the root of a very large pine-tree. He bored several deep holes, slanting in beneath it, and put into each a large quantity of powder. This was on the steep banks of the Rideau, at a place called *Hog's Back*. A number of persons, about eighty, were employed in fixing a wooden

dam in the river below. It was in the middle of winter, and a number of men and oxen were employed in dragging pine-trees along the ice to the dam. The tree-root which was to be experimented on, was about fifty feet above the level of the ice in the bed of the river; and the greater number of people working at the said dam, were nearer to the side on which the root was, than they were to the other. All things being prepared, the order for every soul to *clear out* was given, as the match was fired. The overseer, and the majority of the people, conceived the side of the river opposite to where the root was, would be the safest place, as there they would behold the explosion without being injured. The distance being great, and as every one thought quite out of the reach of danger, accordingly the crowd took up a station at least five hundred yards off; but some of the people working with the oxen on the ice below, not being able to get into a place of supposed safety, the oxen moving so slow, fled in beneath the bank, as it were, where the root was; off went the tremendous blast, the sun for a while was darkened with roots and boards of frozen clay; taking their terrific flight over the cowering drivers and oxen, to the opposite side of the river. When the multitude saw matters ap-

proach them so near, and beheld over their heads immense roots flying in all directions, the exclamations "*Good Heavens !*" and "*The Lord save us !*" were heard to escape them. Some turned round to run, others crouched down, putting their hands over their heads. After the blast was over, each anxious to learn the result, few knew one another, the fright and mud having so changed their appearance. Many were writhing in extreme pain from hurts and bruises received ; but no one was killed except the poor overseer himself. He had been struck by a root on the side, his arm and several of his ribs were broken : he never breathed after he was found. A wife and large family were by this accident left in indigent circumstances, and the public works deprived of a useful man.

Even in their spade and pickaxe business, the poor Irish receive dreadful accidents ; as excavating in a *wilderness* is quite a different thing from doing that kind of labour in a cleared country. Thus they have to *pool in*, as the tactics of the art go—that is, dig in beneath the roots of trees, which not unfrequently fall down and smother them.

Emigration of the poor may probably answer a good end, as lessening the dense population of Ireland ; but it certainly will never do well for Canada, unless some other methods be devised than those

now observed. It may perhaps be argued, that they are necessary as labourers at public works ; I would say, no such thing. If I had any work to perform in Canada of my own, I would not employ any *Irish*, were it not for mere charity. The native French Canadians are much better labourers, as they understand the nature of the country, can bear the extremes of the climate much better, keep strong and healthy, and always do their work in a masterly and peaceable manner ; whereas the Irish are always growling and quarrelling, and never contented with their wages.

The Canadians are quite able, too, to perform all the public labour of that country ; and those who can direct them in their own language succeed extremely well. I am certain that if *all* masters understood the language, as many of them do, the *poor Irish* would receive no employment, as I before stated, except out of mere charity. The Canadians are every way superior labourers in their own country, and repay their masters much better. Let some plan, therefore, be found to keep these people in bread at home ; and I think it is possible to find out one. Emigration only increases their distress, and they may just as well die in Ireland as in Canada.

Suppose even they were put upon *cleared lands*

to live by farming, they will only exert themselves so far that they may not starve; they will not struggle for any *comforts* beyond this; to say nothing of *laying by* any thing in the shape of *rental*, to pay for the expense that somebody must be at in clearing the lands cultivated by them, which could not be less than somewhere between three and four pounds an acre. Perhaps I may be considered too severe on this subject, and were I not speaking from practical experience, the accuracy of my statements might be doubted. There have been too many erroneous opinions advanced with respect to emigration. Those who hold *wild land* in the country are advocates for it; as they think the labourer will be able in a few years to obtain as much money by the sweat of his brow, as may enable him to purchase a farm of this land,—a thing which does not happen in one case out of fifty.

The Irish landholder and the philanthropist are also its advocates; the first, because it tends to rid his unfortunate country of a portion of its misery; the second, for the same reason, with this addition, that while it weeds misery out of Ireland, it does not plant it in Canada,—which is not the fact, for it does plant it there, and in a more melancholy point of view. There are many

other self-interested people who praise it up in high terms, such as those who pick up perquisites even out of the tattered pockets of poor emigrants. There is even property obtained out of poverty itself, and there are men who fatten upon beggars: for few emigrants arrive in Canada who have not *something*, and even although that be an old chest full of rags, still it has its value. While they remain utter strangers to the country, a good deal of work may be *got out* of them for nothing; and there are a great variety of heartless sharks in this world, who will take advantage of such circumstances and get all the *work* they can out of them for nothing, and afterwards turn them adrift to the Devil, for any thing they care.

I have no interest in emigration, God knows! it can matter nothing to me whether the poor people of Ireland remain at home or go to Canada. But I am a human being; I have been in both countries, have seen with my own eyes, have felt with my own heart, and conceive it to be no crime, no feeling of hatred towards Ireland, to avow, so far as I am enabled, the honest truth.

It has been reported, and generally believed, that the uncultivated bogs of Ireland extend to three millions of acres; that these are situated between three and four hundred feet above the

level of the sea, and therefore capable of great improvement by drainage, and by other means; and that the River Shannon might be easily made to have an inland navigation of four hundred miles; and the other rivers made much better for trade than they now are. What can be the reason, then, that these great concerns, which are close at our own doors, pass almost unnoticed? Must not the redundant population of that unfortunate island be allowed to participate in the common bounties of Nature, without being inhumanly transported in home slave-ships to foreign shores, either to perish on the voyage, or linger out a few miserable years in forests and wildernesses such as abound in Canada or elsewhere? Did these, our woody colonies, abound in *bread-fruit trees*, like some of the islands in the great South Sea, then the poor and destitute might well sigh with watery mouths to be carried thither. But is this the case? certainly not: and yet we see too many talking and acting as if it were. We may allow that a certain number of human beings are requisite to colonize a particular portion of the earth, according to its situation with regard to the rest of the world, and especially its connexion with the mother country, in order to develop its resources, and assist in its protection in

case of invasion. But when this is accomplished, and people begin to detach themselves according to their various interests and vocations, those without means must reasonably remain unprovided for. There is no combination to lend them assistance, they are unable to help themselves, so what must become of them? Are they then any better than if they had remained in *Ireland*? It is true that servants are required, and many would be very willing to employ a great number, but they are unable to pay them adequately for their labour; as agricultural produce will either not admit of being raised beyond what will support the family, or the chance of a crop, and expense of transport to market, deter them from making the attempt. Poor ignorant people, too, when they arrive in such colonies, are apt to feel themselves considerably elevated, and will not condescend to toil for mere *bread* until reduced to the last stage of poverty. Besides, as they have land offered to them for a trifle, the idea of being *proprietors* has a most intoxicating effect. Under this influence, I have seen them hurrying into the woods with a very indifferent hatchet, a small pack on their back, followed by a way-worn female and her children, there to live for a time *on air*, (and if that rise out of the swamps, none of the best

either;)—we have met them again crawling out,—and where is the heart that would not melt at the sight?—some of the children, most likely, dead, and the rest bit and blindfolded by musquitoes!

We observe, that the emigrants from Ireland will clan together like the Scotch and Americans, but not, like these latter, for one another's mutual benefit. A wealthy Irish settler will not assist his countrymen so much as we are led to expect. He will cry "Ireland for ever!" and "Oh, my country!" on election days, when they will rally round him, and drink "Success to his honour!" with shouts of acclamation. But will he help a few of them to build huts over their heads in his neighbourhood, to a patch of potato land, or any thing of the kind? Alas! we have rarely seen instances of such things.

Letters from settlers to their friends in Britain are not to be entirely depended upon; few of them are exactly true, and for these reasons: They wish as many of their friends to follow them as possible, for it is natural in man to have his friends about him; and to do this he must paint the beauties of Canada in glowing colours; he must dwell upon the fertility of the soil, the cheapness of farms. If they cause them to forsake a *comfort-*

able home, and come out to Canada, they commit no small crime. By remaining as they are, they benefit their own country, according to their station; by leaving it, they in some degree do it an injury; and after being *deceived* in going abroad, they blame their friends, themselves, and the country they are brought to adopt. They may, it is true, *return home again*, if they are able; but this by a family of spirit will not be thought of,—they will wear away life with vexation, and in this state they are too frequently met with. There is nothing like travellers telling the honest truth, and letting people judge for themselves. There are certain classes of emigrants that might do well, but these must not be poor, nor yet very rich: such as have been in the school of adversity, and are no strangers to difficulties. Such letters do much injury; they not only bring out people to be deceived, and so become *discontented*, but from being friends at *home*, they are foes ever afterwards. All the noise about cheap provisions, plenty to eat and drink, and but little to do, is nonsense; and, indeed, if any one out of the country would consider it, they might see it at once. I can only say, that I have seen *more* distress in Canada than ever I saw *out* of it; and if we used as much exertion to live at home, as

we are obliged to do when there, few of us would go there. But we are slow of belief, and probably it is as well; the truth is generally disbelieved. Any thing that gratifies the imagination is easily imposed on us, while that which detracts from the ideal is abhorred, and will not be received.

They who invite their friends extol the *absence of taxes*, the salubrity of the climate, the pleasures, amusements, pastimes, &c. They must not say a word about the *difficulty of clearing the woods*, the toils of the hatchet, the heavy lifts, rheumatic complaints, &c.; they must not say that only a mere speck of the country is yet cleared, and that they may get *land almost for nothing*; for what is its value, remote from towns and places, where it may be brought to some account? Not one of the *logs* that are seen landed on our shores is cut on the farm of any settler; there is no cleared land within 300 miles of where they are obtained. There are no taxes of any extent, because there are very few who could pay them were they imposed. Where there is little taxation in a country, there is often little wealth.

Some time ago, Canada was highly praised and blazoned forth as a proper place for emigrants. Then came New South Wales; and now the Swan River, New Holland. Thus it shifts about,

and will doubtless turn out to be Canada again. No one, it is gravely asserted, "ought to go out to Sydney, without being able to lay his hand on 1200*l*." This is a pretty large sum for a poor man: this would set him decently up in trade at home; but he will never find himself worth so much money again, if he once squander it on the cultivation of wild land. If he happen to be an early settler in a colony, wherever that may be, he then may probably add a little to the original stock, by disposing of produce at a high rate to new comers; but when the market finds its level, where is he? who will then pay him well for his beef and cabbage?

Thus we find all new colonies praised highly at first, and then they retrograde. There is no doubt that the necessaries of life may be had in New Holland, and that the climate is good; but these necessaries can be obtained as easily in Canada, and the climate is equally salubrious. Indeed, when we find that the springs in New Holland are very brackish, when the salt lies like hoar-frost on the grass in the morning, and the country is covered with *bushy brushwood*, and not with stately trees, we are inclined to look back to Canada as the favoured land of the two; and although the society in the latter country

can certainly not be extolled, still we think that the natives of Newgate cannot be much superior to their descendants. Yet we are rather disposed to think they are: that is, in plainer terms, the convicts sent out to New Holland are superior characters to that refuse of the United States which pollutes the population of Canada; for be it known that the Americans who fly to Canada are the worst of the worst, more notoriously bad even than we find them in the States. Emigration, then, as a general question of policy as regards the welfare of Britain, seems to stand on a brittle foundation, while so much excellent land in the three kingdoms remains uncultivated, and which may be much more easily rendered fit for all the purposes of agriculture than the wildernesses of either the East or West Continents.

Private families may wander forth according to their own fancy—may leave a land that, to their experience, teems with hollow-hearted wretches, false friends, insufferable taxes, &c.

“ And seek the valley free of woe,
If such be in the world below.”

It is our duty, as travellers, to lay the matter fully before the public, so far as we understand it; and to offer as few opinions as possible, without producing our reasons for doing so. The restless

anxiety of man, the discontent arising in the breasts of thousands without cause, the propensity for wandering, and passions that cannot brook disappointment, all tend to promote emigration. When such are its prevailing causes, let us ask those skilled in metaphysics how we are to explain the moral condition of such communities in wild foreign countries? We are inclined to think that their report and ours will in substance nearly agree.

It has been known that settlers will sometimes rush into their farms in the woods, plant a sack-full of potatoes, and retreat again with all due precipitancy, well-stung with insects. Towards winter they will visit the plantation, and dig up the crop, if a wandering sow with her brood should not have been there previously, and already accomplished that purpose; for swine have an instinct in the woods peculiar to themselves. They never lose their way, and can scent from afar a butternut-tree, a valley of acorns, or a horde of murphies.

There is evidently an infatuation about emigration, when families conceive they will better their condition by removing to a distant country; when they become determined to quit the land of their fathers for evermore, be the consequences what

they may. It is vain to offer an opinion to the contrary, or make any attempt to dissuade them from their purpose ; in truth, by endeavouring to do so, it only hastens them on the more. Any passage they meet with in the pages of the books written by travellers who have visited the promised land, which seems favourable towards it, is believed, and treasured up in their imagination ; while any remark having an opposite tendency, is laid down as contrary to truth, and the poor author decried accordingly : though such supposed *lies* are generally the most valuable of *truths*, and ought to be acted upon by all people who have any pretension to reason or common sense. We have met with numbers in Canada blaming themselves that they allowed their judgment to be so far misled before they left home ; but even this is all for the best, as, from such examples, they are surely rendered more open to the belief of the Sacred Scriptures.

VALE OF GATTINEAU,

A PROPER PLACE FOR THE TRANSPORTATION OF CONVICTS.

IT seems to me that it would be much to the benefit of Great Britain to transport a part of her convicts to this Vale of the Gattineau; they would here be quite apart from the rest of the inhabitants of the colony, and it would be perfectly impossible for them to escape. A tailor once took it into his head to run away from his master at Hull, and return to Quebec, the place of his nativity. He started early in the morning, took a canoe, crossed over the River Ottawa, and entered the wilderness on the opposite side. Day after day the poor fellow wandered in the woods, and found nothing to support life but a few wild raspberries. At last, on the tenth day of his desertion, he came out at the *Rapide de Chats*, about thirty miles from Hull, and quite in an opposite direction to that he intended to

travel. The mosquitoes had feasted on him in a shocking manner; as, in passing through the thick woods the trees had torn off his garments, and exposed his almost famished carcase to the mercy of the merciless insects. He got back to the *lapboard*, and never thought of stirring away more.

Now the only way that the convicts could desert would be by Hull, and if they ever reached that from the vale, they might think they had done wonders, to say nothing of having afterwards to perform the *tailor's trip*.

Convicts could be transported to the vale at about one-fourth of the expense that they now are to New Holland. They would find it, when cleared, extremely fertile, fit to produce roots and fruits in abundance. I have seen specimens of lead and zinc brought out of it by the Indians; so there is a mine of these metals in it to a certainty, which might probably be wrought to much advantage. As the local situation also is excellent, with regard to Upper and Lower Canada and the Interior, it might become a place of great importance and utility to the Mother Country, and a receptacle for villains near to the British gaols, where they could be delivered and retained with much security, and employed to advantage.

It embraces an area of 25,000 square miles, perfectly distinct from all lands of location, ranging between the 46° and 48° of north latitude, and may average about 300 feet above the level of the ocean. It is covered with a dense wilderness of trees, generally of the *hard-wood kind*;—oak, beech, maple, butter-nut, &c. which are of the very best quality. The snow falls in the beginning of December, and generally vanishes with the month of March. The Gattineau is a river about four times as large as the Rideau, and about twelve times as large as the Thames, out of the influence of the tide. It is subject to two floods in the spring, like the Ottawa. I have penetrated into the vale for the sake of curiosity; and the statements here made, if ever a proper survey takes place, will not be found, I dare say, very wide of the fact.

The most comfortable place for convicts in Canada, then, is in the great Vale of the Gattineau, which commences beyond the Great Falls, and are about 50 miles above where that river disembogues itself into the Ottawa. Towards the west, between this vale and the Lakes of Chaudiere and Chats, (which are each what are termed thirty-mile lakes of the Ottawa,) the lofty mountains of Airdly extend in compact ridges, averaging 1500 feet above the

level of the waters of the Lake of the Chaudiere. To the north, the vale may be said to be bounded by a branch of the Rocky Mountains, in which the Gattineau is supposed to have its rise, about 800 miles from the river's mouth. To the east is another range of high mountains; and then the River Leivre, which also rises out of the Ridgy Mountains, and discharges itself also into the Ottawa, about 30 miles farther down than the Gattineau. To the south, from the vale, is the famous township of Hull; a township that can boast of 2000 acres of cleared land, and 1500 inhabitants. There is no township located equal to this for more than 60 miles in any direction from it. The great Rideau Canal has its entrance near the mouth of the Gattineau, but on the opposite side of the Ottawa, where an excellent fortification on a cape may be easily made. At present this cape forms the Rideau Military Post: it overhangs the Ottawa, as it were, nearly 300 feet above it, and is a most commanding station.

BENEFITS TO CANADA..

LET the French Canadians have their own way, and follow their own laws, religion, and customs. Our Legislature have seen this, and acted wisely towards them. They ought to be allowed the appointment of their own rulers, to impose their own taxation, and expend their own funds as they think most proper; wherever, as in Lower Canada, large colonies of them are found together, every privilege ought to be granted them, which would greatly encourage their exertions. Their *head men* and *top man* of all should be chosen from their own people. Settlers from Great Britain and Ireland, who are among them, would feel perfectly happy and secure in this arrangement.

Let nothing be brought from the United States into Canada, unless a very heavy duty be laid on

it; and let all our business with the people of the United States be transacted by officers sent out direct from home. If this is not attended to, the Americans will do as they please; bring over what they will, charge and catch what they can, and return without thanking us. Let the contractors who supply the troops with provisions, find these in Canada; oblige them not to buy one pound of beef, pork, flour, &c. from the Americans, and then our Canadian farmers will exert themselves. For many years past these contractors have been Americans, who cry up that there is no food in Canada; only let them look for it, and I am certain it can be *found*.

Let there be a regiment raised of native Canadians, with officers of their own selection; but let *us* pay them. These, in the event of war, might be scattered amongst the militia, and do good; while they would see that in time of peace we valued them even as soldiers; for, when they find none but British men considered worthy of bearing arms, they feel offended. We could not pay them a better compliment than this; and they are very fond of compliments.

Let no person or persons be appointed to any situations in Canada by the British Government,

unless they happen to have nothing to do with the vital interests of the community ; such as the officers of customs, commissariat, post-office, &c. The voice of the Provinces ought to be heard before Receiver Generals, Judges, Surveyors, &c. be selected, or thought necessary.

The duties collected from the timber ought to be chiefly laid out in the improvèment of the navigation of the timber rivers ; and these improvements should be directed and superintended by persons who have proved themselves equal to such undertakings ; and none, on the score of interest, ought to be allowed to have any thing whatever to do with them. This is the reason why all professions in the colonies are abused ; and quacks, perhaps, thought as much of as any other people.

Let all absent proprietors of wild land, who interfere with settled townships, be taxed ; which will oblige them either to improve their own lands, or dispose of them to those who will. This would be productive of great good.

Let the Settlers on the banks of the rivers and lakes be given all their *broken fronts*, on condition that they will open them out to the water's edge, by which means roads and canals may be led amongst them, to their great benefit, and the

free air allowed access. They will thus be less troubled with flies and insects during the hot season, and even with sickness: and as the lands of some *settlers* have more natural advantages than others, in the shape of springs, streams, milk-seats, beaver-meadows, hills, valleys, swamps, &c. let these be exchanged amongst them, by those competent for estimating such. By such means, they will all find comfortable situations; whereas, on this very account, many remain wretched and miserable. Were regulations of this kind entered into, families might live much nearer one another; while their *clearings* would be of mutual benefit. At present we see farms together, which could easily be brought to operate for each other's well-fare, doing no good to one another, because the clearings are not contrived and laid out so as to meet, but shut up with forests that are left standing between, in which case they have nearly as few advantages as if they lay far more remote in the wilderness. A farmer, for instance, would like to have a place to put up a *saw-mill*, but has not a mill-seat; his neighbour has one, but no beaver-meadow: so let the one give up a part of his *seat* for a few acres of the other's meadow, and the one will consequently have boards, and the other hay.

Let keepers of petty taverns be well taxed, and kept out of the way; and so we should have more good inns, and fewer indifferent ones.

Let our merchants along the American frontier be afforded every facility: let them always be able to undersell those of the Great Republic.

Let not the manners of the Americans be our guide; let us follow those of Britain. Let us feel the influence of religion and respect for the sabbath day; let us behave like good Christians, and promote the fine feelings and tender emotions of the heart; let us love one another, and let the churches of England and Scotland be equally endowed, according to the number of inhabitants in each persuasion. Let the country be well explored, and its great resources examined, not as regards one object, but many; and much will be found of which we yet know nothing. Things must be viewed, and carefully considered, under various aspects. Agriculture is one of the least of its capabilities: this will yet be found correct. I have proofs to satisfy myself, yet these are not to be exposed to the doubting mind. The Americans will never be able to conquer Canada, nor will the Canadians ever join with them, although they may part with the character of a *Colony* of Great

Britain* after a time, and become much more valuable to her *then* than they now are.

* If Great Britain thinks a standing army necessary for her protection, it may be as well that a great part of it be kept in Canada as elsewhere, provided the Canadians can supply it with provisions. But if the Americans have to do this, it were much better if the portion which cannot find food in the Colony at a reasonable rate, were to be removed home ; unless it be considered proper policy (which it may be) to pay the Americans for supporting them.

CANADA COMPANY.

IN the year 1825, famous for speculations, schemes, and companies, in the City of London; when the bowels of the Mexican mountains received strong purgatives in order to free them of ingots of gold and silver; when the pearl oyster of the orient seas yawned with surprise at the appearance of diving-bells; and when golden sands, said to be brought from the shores of Africa, were spread in the courts and alleys of Lombard-street, to allure the unreflecting;—the wilderness of Canada was opened before the public, and, contrary to all expectation, received a considerable share of attention: although there was nothing seen to glitter about it; still there were many objects of great attraction, which continued to gain on the affections. The “Canada Company,” therefore, under the provisions of an

Act of Parliament, became incorporated in 1826 ; and having contracted with his Majesty's Government for the purchase of the Crown Reserves, and other land in the Province of Upper Canada, set earnestly to work. I shall endeavour to give as concise an account as possible of their proceedings, as I am generally acquainted with all the circumstances respecting the same ; and which may, likewise, serve to illustrate various subjects connected with Canada, and interesting to many individuals.

Mr. Galt, the celebrated novelist, being appointed secretary to the Company, in his letter to me of June, that same year, thus speaks regarding their capital city.

“ The founding of Guelph, with Doctor Dunlop, was one of the richest scenes imaginable. In the first place, we went by ourselves on foot, leaving the surveyor, &c. to take their own course ; and the Doctor lost his way, having forgotten to take his compass. After wandering about, like two pretty babes, without even the compliment of a blackberry, we came to the house of a Dutch squatter, who could speak no English. At last he broached a certain French, and we took him with us for a guide. All this time it rained as if the powers of the air had lost the spigots of their bladders ; so that, by the time we had reached a

shanty, which had been prepared for us by the axemen, we were both drenched to the skin. The Doctor unclothed, and making to himself a kilt of one blanket, and a toga of another, we proceeded to fell a central tree: at the prostration of which, the Doctor, acting the Red Genius of the place, pulled a bottle of whisky from his bosom, and sans glasses, christened the town with a benediction in presence of the assembled multitude, consisting of four other persons. I wished him to give some becoming account of the spectacle, but he has permitted others to do it for him, as we see by the newspapers; so a good joke, when properly told, has been metamorphosed by Yankey exaggeration."

This town is situated on a branch of the Ouse, or Grand River of Lake Erie, called the River Speed, which is a considerable stream, with falls, in the vicinity of the town, sufficient to afford sites for fifteen or twenty mills. Limestone, easily quarried, and which makes excellent lime, is found in the immediate vicinity of these falls, and clay, well adapted for making bricks, is plentiful; the land was found covered with heavy timber, so that all materials for building were abundant, and no time was lost in improving these advantages. The operation of clearing the ground for the town-

plot, was commenced on the 23rd of April. The first building erected, was a large house for the reception of settlers on their arrival; and, as an encouragement to the early settlers, it was promised, on behalf of the Company, to set apart one-half of the prices obtained for town lots, as a fund for building a school-house, and maintaining a schoolmaster; while sites for churches and burying-grounds were given gratuitously to congregations of all religious denominations applying for the same. As a farther inducement to early settlers, the price at first fixed for town lots, of a quarter of an acre each, was twenty dollars, with the privilege to purchasers to take up farms in the vicinity, of fifty acres each, at 7s. 6d. currency, or one and a half dollars per acre. These prices, however, being insufficient to pay the expenses incurred by the Company, were subsequently raised, first to thirty dollars, and then to forty dollars for town lots, and to 10s. and 12s. 6d. per acre for the farms; and at these different prices, according to the respective dates at which the contracts were made, above 200 town lots and 16,000 acres of land had been engaged previously to the 1st of October: at which period seventy-six houses were built, or building; a saw-mill was in operation; a brick-kiln was actually burning; a grist-mill was

in progress ; a market-house, two taverns, and several stores had been opened ; several tradesmen and mechanics had established themselves, and found advantageous employment ; a temporary school-house was regularly attended by above forty children, and the foundation of a stone building for a permanent school-house had been laid ; a printing-office was in preparation ; and, in short, if the progress of this town may be assumed as a criterion for other settlements to be opened by the Company, it is considered to afford abundant evidence of the encouragement given by the Company to settlers on their lands.

The territory from which the Huron Tract has been selected, was explored previously to the selection being made ; and the reports which were received from the parties employed on that mission, are of the most satisfactory nature.

This tract is bounded on the west by Lake Huron, along which it runs for nearly sixty miles, having within its limits one considerable river, at the mouth of which is a good harbour, another river which may probably be rendered navigable, and numerous creeks and streamlets, many of which are large enough, and have fall sufficient to drive mills or machinery of any description. On the south it is bounded by the townships of Zorra,

Nissouri, London, and Lobo, all in the London district, which townships are partly settled, and in which the Company have above 250 lots of reserves for sale. On the south-east it communicates with two considerable blocks of those already mentioned, situated in the township of Wilmot, containing 30,000 acres, only twelve miles distant from the Geulph block, and connected therewith by roads already opened through the intervening township of Waterloo, which is an old and populous settlement. The improvement of these blocks, therefore, in which such considerable progress has already been made, will open a direct road for settlers proceeding from Lake Ontario to the Huron Tract.

The climate is known to be temperate, and, compared with that of England, it may be described as warm for at least nine months in the year. This is the more particularly stated, because, in consequence of the known severity of the cold in Lower Canada during the winter, it is a common error to imagine that the Upper Province is similar in climate, and alike subject to the annual interruption of agricultural operations for four or five months; whereas, besides the difference of latitude, which is upwards of three degrees, or above 200 miles, between Quebec and the most

northern part of the Huron Tract, it is well known that in North America, and especially in the great valley of the St. Lawrence, the warmth of the climate increases, even in the same latitude, according to the distance westward from the Atlantic Ocean, and the distance from Quebec to the tract is upwards of 700 miles. It is also well known in America, that the climate always improves, or rather increases in warmth, with the destruction of the forest and the cultivation of the soil; and when this territory shall be fully cleared, the apprehension of the farmer will probably be, as it now is in some of the adjoining districts, that there will not be enough of snow to make good winter roads, for the conveyance of his produce to market, or of timber to the saw-mill, or to the stream on which it can be floated for exportation.

Dr. Dunlop, a gentleman of great experience and learning, who had been through the wars in Canada, was appointed by the Company to act as Warden of their woods and forests; and surveyed the great Huron Tract in the summer of 1827; having with him as assistants John Brandt, Esq. the Chief of the Mohawk nation, and Messrs. Sproat and Macdonald. They penetrated the huge untravelled wilderness in all directions, until they came out on the shores of the Huron; having

experienced and withstood every privation that wanderers can possibly be subject to in such places. The Doctor's journal is one of the most replete I have ever seen, and would certainly adorn the pages of *Philosophic Record*. In regard to the soil he says, "I have already adverted to its nature and fertility, and think I may be justified in adding that such is the general excellence of the land, that if ordinary care can be taken to give each lot no more than its own share of any small swamp in its vicinity, it would be difficult, if not impossible, to find 200 acres together in the whole territory which would make a bad farm. Although the land may be capable of raising any kind of produce usual in that country, yet some spots are more particularly advantageous for particular crops. The black ash swales, a kind of swamp, make the best ground for hemp; as, by the scourging effect of two or three crops of it, the ground will be made more fit for the raising of wheat, for which, in the original state, it is too strong. The rich meadows by the side of the rivers, more especially such as are annually overflowed, are ready, without farther preparation, for tobacco, hemp, and flax. The lower meadows, and meadows adjoining to Beaver Dams, which are abundant, produce at this moment enor-

mous quantities of natural hay and pasture ; and the rest of the land, for the production of potatoes, Indian corn, wheat, and other grain, is at least equal, if not superior, to any other land in the Canadas. Independent of the swamps, the timber on the land is very soon described. The sugar maple is the principal growth, and the size and height which it, as well as the other trees, attains, sufficiently evince the strength and power of the soil. Next to this come the beech, elm, and basswood, in various proportions ; in some instances the beech and elm predominate over the maple, but this is rare. Near the streams the hemlock is found ; and interspersed through the whole is the cherry, butternut, the different species of oak, and the birch."

Another gentleman states, "As far as I have explored the territory, and as far as I could learn from the different other explorings, I have to say, my impression is, that there is not a better tract of land, if there is any equal, of the same extent, in the Province of Upper Canada. It is abundantly watered with a variety of streams, which are not like the slow-moving, dull, stagnant ones in some other parts of the Province, but are swift, and in some places rapid ; which will tend greatly to the salubrity of the climate, as well as to other

invaluable benefits, when the land becomes settled, from their being suitable for hydraulic purposes. The soil is always judged of by the timber that grows upon it : when that consists of maple, beech, basswood, and cherry, the land is considered very good ; but if the maple and basswood are the most prevailing, it is considered of superior quality."

A third says, " In passing through the country I have found the timber (naming that first of which there is the greatest quantity, and the rest in the same order,) to be maple, elm, beech, and basswood. There are others in less quantity, viz. hemlock, butternut, black ash, white ash, soft maple, white oak, hickory, and pine. The soil in general is a black loam, sometimes with a proportion of sand, the subsoil clay with a mixture of sand ; there are very few stones, except in the beds of the rivers and creeks, and that principally limestone. The banks along the shore of the Lake have rather a forbidding appearance when viewed from the water, being clothed with cedar and hemlock to their bases ; but as soon as you arrive at the summit of their slopes, the good land, clothed with the hard timber before-mentioned, makes its appearance. In scaling the

shore, we took opportunities of going into the interior, and in all cases found the land good."

With such testimonials from actual examination by respectable individuals, the Directors felt they could with confidence recommend the Huron Tract to the favourable notice of persons intending to settle in Canada; and were disposed to offer every inducement and encouragement in their power to draw the attention of settlers to that part of the Company's land. Therefore, although all new settlements are in their commencement attended with very considerable expense, yet the situation in the neighbourhood of the harbour at the mouth of the river, called by the natives the *Menesetung*, is represented to be so well adapted for the site of a considerable town, that instructions have already been sent to make arrangements for laying out a town and commencing a settlement. To this it is proposed to give the name of *Goderich*, the intention of the Court to bestow that name on the Halton Block, having been anticipated by the superintendents giving it the name of Guelph. And as the Indian name of the river is rather unpronounceable, and the name of *Red River*, which it has heretofore received from voyagers and Indian traders, is common to several

other rivers in North America, it was proposed, in compliment to the Lieutenant-Governor, to call this river the *Maitland*.

In addition to the town to be established on the banks of the river, directions came to lay out a township in the immediate neighbourhood, to be subdivided into lots of eighty acres; and in order to attract early settlers, the Directors resolved to dispose in this country of 200 such lots, at 7s. 6d. per acre, and to give to purchasers applying the right of choice of the lots. The priority of choice was to be according to the time of their claims being presented after their arrival on the spot; and they were farther to have the privilege of selecting a town lot at the price to be fixed for the first settlers.

The inhabited part of the province of Upper Canada extends along the shores of the River St. Lawrence and the Lakes Ontario and Erie, from the Lower Canada boundary line and the Ottawa River, to the Detroit River and the Lake St. Clair, a distance exceeding 500 miles. This space is divided into districts, which are subdivided into counties, and these into townships, each containing, generally, about ten miles square, or 64,000 acres. The townships are farther divided into *concessions*, by lines running parallel to the river,

lake, or settled township, which is called the *front*; and the concessions are subdivided into *lots*, by lines running from front to rear of the township, which, by the intersection of these lines, generally at right angles, is thus laid out into a *diagram*. In the original survey and allotment of these townships, every seventh lot was reserved for the use of his Majesty, and the lots so reserved are known in the province by the name of the Crown Reserves, of which the Company contracted to purchase about 1,200,000 acres, in detached lots, or separate farms, generally containing 200 acres each.

In some of the new townships in the western part of the province, that seventh part of the land reserved for the use of his Majesty, instead of being so taken in detached lots, was laid out in *blocks*, or masses of lots contiguous to each other, and containing from 2000 to 10,000 acres. In a few cases, where several townships had been surveyed without any such lots or blocks being reserved, larger blocks were marked out in their vicinity, containing from 12,000 to 40,000 acres. Seventeen of these blocks, containing, in the whole, about 160,000 acres, are comprised in the Company's contract.

In lieu of a moiety of other reserved land,

known by the name of the Clergy Reserves, comprised in the original contract, the Company has obtained the grant of a tract of one million of acres, which has been selected out of the land belonging to the Crown on the south-east shore of Lake Huron, which is proposed to be called the *Huron* Tract or Territory, and in the survey of which no land is to be reserved for the Crown or the Clergy. The inhabitants of this tract, therefore, will be exempt from an inconvenience much complained of by settlers in other parts of the province,—that of their farms being separated from each other by reserves, and other grants of land which remained unoccupied and uncleared, forming an impediment to the continuous settlement of the country, until they acquired value from the labours of the settlers around them, and from the increase of population, which the existence of such reserves and grants of land remaining unsettled had greatly contributed to check. On the contrary, the whole of the land in the *Huron* Tract will at once be open to unimpeded and continuous settlement ; and in addition to the labours of the settlers for their own benefit, and to the expenses which the Company may incur for the improvement of their own property, they are authorized, under the contract, to expend above

45,000*l.* of the purchase-money in such public improvements, within the tract, as shall be approved by the Provincial Government, or by the Secretary of State for the Colonial Department.

The detached lots of Crown Reserves being, as already mentioned, scattered throughout the different townships all over the province, and being each, as a separate property, of too little value to justify or remunerate expensive preparations by the Company for improvement and settlement, are offered for sale in their present condition. Those in townships already inhabited are suitable purchases for persons desirous to locate themselves in old settlements, or near their friends already settled, or for settlers already located who may wish to add to their property; while some of the smaller blocks may suit capitalists desirous to possess estates of greater extent than separate farms of 200 acres. The facilities to be afforded by the Company for the improvement and settlement of these detached lots and smaller blocks are, for the present, limited to contributions for objects of public and general advantage, such as roads, bridges, &c.; to several of which considerable donations have already been given, and to which, when of manifest utility to any township in which the Company possess land, the superintendent is au-

thorised in every instance to contribute in proportion to the full extent of the Company's land, *in money*, while the contributions of other proprietors, or of the inhabitants, may be *in labour*. On the larger blocks, however, and especially on the Huron Tract, it is contemplated to make various improvements, to facilitate the location of settlers, and to place both those who possess some capital, and those who are merely able to defray the expense of conveyance to their intended locations, in such relative positions as to render the capital of the one class, and the labour of the other, mutually available for their reciprocal benefit.

In both these plans of proceeding a considerable beginning was made during the year 1827. Of the detached lots of Crown Reserves about 300 lots, selected by the purchasers, and containing nearly 60,000 acres, have been disposed of at moderate prices, payable, generally, in five to seven annual instalments, with interest on the same till paid. On the largest of the blocks, situated in the county of Halton, and district of Gore, and containing above 42,000 acres; the town, called *Guelph*, has been laid out in a central position, to which roads from the adjoining townships have been opened at the expense of the Company; and

the progress made by the town and the settlements in its vicinity has exceeded expectation, and is understood to be without precedent in Canada.

As this new settlement is to be formed on the shore of Lake Huron, it may be right to state, that this lake and the rivers which fall into it, abound with excellent fish. Sturgeon is found in the rivers generally, and a species of excellent trout, sometimes weighing forty or fifty pounds, is found in the lake. White-fish, blackbass, pickerel, and various other species of fish with which the lake abounds, afford at the proper seasons grateful and nutritious food ; and at the mouth of the Maitland in June last, the exploring party found fish in such abundance, that in one day a man could spear enough to fill a pork-barrel. This is nothing wonderful, as I have seen one man at the Rapids of Chats spear as many in one day as filled three barrels. Salt springs are quite common in the Huron territory ; so that the manufacture of salt for the supply of the country at least, if not for exportation, will probably be very soon established. To the new settlement of Goderich the communication, for some time, will be by navigating Lake Erie, the River Detroit, the Lake and River St. Clair, and Lake Huron : which route, although it is circuitous, and on the map

appears formidable, may yet in steam-vessels be navigated in four or five days from Fort Erie, or Buffalo, or the Welland Canal, to Maitland Harbour ; and settlers are conveyed from these places to any part of the Company's Settlements free of expense. By the same navigation and through the Welland Canal, which opens access from the River St. Lawrence to the inland seas of America, the future produce of the new settlement will find its outlet ; and an inland communication with the rest of the province, by means of roads, is an object greatly attended to in the general arrangements of the Huron Territory. In a few years Lake Huron will be made to communicate with the Grand River, and then an open and direct course at once is obtained to the ocean : this is perfectly practicable, and can be done at very little expense. The settlers on the banks of the Ottawa, or Grand River, will soon meet with those on the banks of the Huron. The Ottawa is already nearly navigable to Hull ; and the difference between the level of the waters at Hull, and those of Lake Huron, is 460 feet, which may be easily overcome by 40 drystone locks ; each of which will cost about 2000*l.* : so this great connection may be made for about 150,000*l.*

Dr. Dunlop, a gentleman of strong constitution,

and knowledge, "Warden of the Company's woods and forests," while surveying the immense Huron Tract in the summer of 1827, with his assistants, the renowned Captain Brandt, chief of the Mohawk nation, and my friend Mr. John Sproat, before they came *out* on the shores of the Huron, experienced and withstood every privation that wanderers can possibly be subject to.

The reader may by this-time be well aware of the difficulties to be encountered in a Canadian survey : Dr. Dunlop and his intrepid party had certainly their full share of them ; and at one time it went the round of all the American newspapers, that they were murdered, and would be heard of no more. At one time, indeed, they ran out of the *region for game*, and were almost sacrificed by hunger ; the Indians who hunted for the party, *bagged* nothing, as is said in sporting language, but had frequently to return to the camp without deer, bear, ground-hog, pigeon, or partridge. They wandered over thousands of acres of the best land, if such may be judged from the *hard-wood* forests growing on them ; and such is a criterion which has never deceived those who understand the matter. A proper crop of trees growing on wild land, denotes its worth with as much truth as if a crop of good wheat or Indian corn

waved upon it. About the middle of the block, the explorers came upon an extensive *swamp*, of nearly twelve miles square, in which many streams had their origin ; some running by Lake Erie, others by Lake Huron : presenting a summit level of a most remarkable kind, but in the present state of comparatively little value, as settlers will never locate themselves in swamps, so long as they can keep out of them : so, although this swamp be fat, strong land, as all swamps generally are, yet, until all the rest of the block be cleared, it has little chance of finding a market.

Coasting along Lake Huron, the Doctor discovered strong symptoms of slate and granite quarries. The Indians, while hunting, discovered a *volcano* ; and it forms an object of regret that this phenomenon lay so out of the range, that the Doctor was not enabled to pay it a visit : he has laid it down, however, as a fixed thing, that if ever he be spared to visit that neighbourhood again, he will see the Canadian Etna, and report on the same.

While returning by way of Lake St. Clair, whom should he meet but Bishop Macdonnell ! who, although well acquainted with the Doctor, did not recognize him, his beard not having been

disturbed with the scythe for three calendar months, his clothes being torn off his back, and his good London boots, with morocco bindings, having something of a mongrel appearance between the sandal and the mocassin. A party of genteel Americans, among whom were some elegant females, when they saw the Bishop speaking to the wild man of the woods, stood with awe and astonishment; but when they heard the polite, attractive, and scientific language of the Doctor, they forgot whether he was shaved or not, and felt pleased to cling round him, and listen to his wild adventures.

Before I had the pleasure of meeting with him he sent me an account of his trip. The passage relating to Guelph, I extract. "The Guelph Block is the finest land I have seen in the province. Here am I set to shanty-building, stone quarrying, lime-burning, saw-mill raising, root-grubbing, garden-planting, exploring, levelling, &c. &c. in great style. Hoping to see you soon, I remain thine, in the ways of righteousness."—We frequently had many a long march through Canada in various wild directions, looking into the resources of the country; and I have met with no gentleman whose opinion so much accorded with

my own. He spoke exactly as he felt, and would be swayed by no interest whatever: circumstances were ever duly considered, and the nature of man in the provinces underwent due consideration; we felt his pulse, we looked into his every thought, examined the way in which he lived and lodged, sifted matters to their dark foundations, and perhaps as nearly approached the real truth, in many particulars, as any Canadian travellers have ever done. His surveys and reports may be entirely depended upon. They must look with clear eyes who shall be able to contradict them.

Mr. Galt deserves great credit for the invention and management of the Company. In this he has shown a genius that is rarely excelled. He organized the whole management of business, and displayed all that tact and diplomacy which his superior talents qualify him for in such an eminent degree. He appointed surveyors and other people to look after the Crown Reserves in the various Townships, that they might be disposed of to the Company's advantage. But these Reserves were not found to be of great utility, as nothing like a system of settlement could be employed in relation to them, lying, as they do, scattered up

and down the Townships. However, their sale will be much in favour of Canada, and tend much toward its improvement; for as they lay like uncleared specks amid a cleared country, they injured the progress of the settlements. On many of these Reserves, *squatters* had taken up their abode, a class of poor people who, having wandered from home without the means of becoming regular landholders, are glad to find patches anywhere in the woods whereon they may subsist. To these unfortunate human beings, and in truth to all, he showed much tenderness, which has assisted to raise that just popularity he at present enjoys. He did not drive the squatters off the Company's lands, as many would instantly have done; but sold them to the advantage both of the Company and the squatters, considering the little *clearings* they had made, as *uncleared* forest. By doing this he has established a class of people in the Townships devoted to the interest of the Company, who will neither despoil, nor allow to be despoiled, those valuable woods which may yet come to good account on the Reserves. Nevertheless, there were some in Upper Canada who continued to view the exertions of the Company with very jealous eyes. These were they

who found themselves unable to *pluck* the poor settlers before they got upon their lands, in the shape of *fees*, or what not. They found the Company established the settler in a twinkling, without putting him to the galling trouble and expense of hanging about office doors, receiving rebuffs from conceited clerks, and getting their purses lightened into the bargain. Were it for nothing else but this circumstance alone, the Canada Company will be respected : when we find the distress of mankind alleviated in any degree, petty tyranny and pride laid prostrate before justice and humanity, it is enough for our affections to become attached ; we want no more. Think of a distressed family leaving the *Old Country*, as home is called, and after much travel and trouble by water and land, at last reaching Canada ; think of a mother, perhaps, having to consign to the growling waves of the Atlantic a lovely child, that had perished aboard a crowded and uncomfortable ship ; think of a husband, perhaps, who has lost his wife in a similar manner : only think of such things as these, and then see them in Canada, toiling day after day to obtain a piece of wilderness that they may cultivate and live upon ! Have they not undergone vexations enough without adding more to

the catalogue? The Canada Company, much to their credit be it ever spoken, has smoothed the way of the weary pilgrims.

Were the Americans from the States allowed to purchase land from the Company, without being annoyed, and obliged to take *oaths of allegiance*, according to the laws of Upper Canada, it has been thought that this would do good to the Company, and the nation at large, as these people are better than any others at clearing wild lands for the purposes of cultivation. No people can wield the hatchet so well as they, and none seem more satisfied with this kind of work. As to their turning out to be a disloyal set in event of a war, there is not much to dread on this score. I have wandered much through America, and this I will honestly own, that although I dislike the general manners and habits of the people of the United States, still they are just as *loyal* a people, as *loyalty* goes in the country, as any others. They are *loyal* towards their property, at all events. Any thing that will affect that, will much interest them; touch their *purse*, and you touch their *loyalty*: if you injure it, depend upon this, if you were even one of themselves, they will resent it. If they have property, then, in Canada, they will *keep it*; and if the *States* would *tax* it, if they had the power, and it is

thought they would, then fear not that the Canadian Jonathan would unite with his brethren of the States to his own injury.

As far as my poor politics go, then, we are acting wrong in keeping these people out of the country. There are thousands of farms in Canada for all people, and the enterprising ought to be encouraged. If the Americans were managed properly, they might be made, in my opinion, an extremely useful engine to enhance the value of property.

The American loves the lonely woods; the Englishman, a cleared country: let them, therefore, enjoy their habits, and, instead of marring each other's interests, they may add greatly to the mutual strength of both.

It has been thought, that the Canada Company is composed of a mere set of land speculators; but this is not the case. Agriculture is but one of the objects in view, and so long as the interests of many respectable persons are directed to this great colony, so long will the dependence and connexion with Great Britain become the stronger. The mines of marble, slate, and iron, which richly abound in the country, may be opened with great advantage. The shores of the Huron abound with lead and copper ores, and like-

wise those of Lake Superior. Distilleries, properly managed, would repay well. Gin and rum, of superior quality, may be obtained from wild berries, which grow profusely in the woods, and the sugar maple; wool and cotton might be raised in the greatest quantities, as the soil and climate are quite favourable; tobacco and rice, likewise, of as good quality as any in America. The marshes are laden with strawberries, and the woods abound in serviceable and ornamental timber. Tar, turpentine, ashes, pork, poultry, &c. &c. might be had, with proper attention, to a great amount. On the whole, the exertions of the Company ought to receive every encouragement; and, although shareholders may grumble respecting the want of "sudden returns," still returns will come in due time, and amply repay the patient and persevering. There are numerous objects to attract attention, and none of them, so far as I am aware, unworthy of it. The resources of the country are great; this they may fully rely on. All they have to do is to turn them to their advantage.

In regard to the Province of Upper Canada generally, it may be stated with confidence, that the inducements to persons desiring to emigrate from any part of the United Kingdom, to select their location in that country, are very deserving of at-

tention. The climate has already been sufficiently noticed, and the soil, in general, is fertile; unoccupied land is abundant, and labour is in considerable demand. The cost of land is trifling. There are *no taxes*, (unless assessments, by legislative authority, for internal improvements, be so considered,) *no tithes*, (the clergy being otherwise provided for,) and *no poor-rates*; so that an agriculturist of industrious habits may, in all cases, and more especially if he have some capital wherewith to begin, look forward to the possession, in a few years, of some comfort and independence, as a landed proprietor, in a country which enjoys almost perfect freedom in civil rights, and equality in religious opinions.

The Company will not defray, or contribute towards defraying, the expenses of embarking emigrants from the United Kingdom, or of conveying them to their place of location in Canada, but are ready at all times to give every information and assistance, so as to enable emigrants to get out in the quickest and most economical manner possible. For this purpose, the Agents at the different sea-ports of the United Kingdom have been instructed to give information to all persons applying, either in person or by letter, (post paid,) as to what vessels are fitting out for America, the rate

asked for passage, and the time fixed for sailing, or any other particulars required. These Agents have also been furnished with maps of Upper Canada, and diagrams of every township in which any of the lands assigned to the Company are situated, to be shown to all persons intending to go out; but leaving it to the parties to select for themselves, upon their arrival in Canada, and actual inspection of the lands. The Agents at Montreal and New York (the two principal routes to Upper Canada) will give them every information and assistance; instead of being left, as emigrants in general have hitherto been, to proceed in ignorance on a journey, which, before the introduction of steam-vessels and the opening of canals, was tedious and arduous; of which many had no previous expectation, for which few had made adequate preparation, and in which all were necessarily subject to the delays and expenses arising from the natural difficulties of their route, and the total want of preconcerted or combined arrangements to facilitate their progress. Contracts have now been made, under which those emigrants who are provided with recommendations from the Company's Office in London, or from any of their Agents at the outports, will obtain from the Agents at Montreal or New York, tickets or way-bills of

the route and mode of conveyance to Upper Canada, by means of which, and at the expense (to be paid by themselves) of five dollars, or twenty-two shillings and sixpence sterling, for grown persons, or half that sum for children, they will be enabled to proceed without delay or difficulty ; and from Montreal they may reach York, the seat of Government of Upper Canada, in about a fortnight, or from New York they may get to Lake Erie in a week.

The object of the Company is not to encourage or deal with speculators, but to open access to the settlement of the lands by a steady and industrious agricultural population. To individuals, or families, or associations of families of that description, the Company will afford every fair and liberal encouragement in regard to price and the terms of payment of the land to be purchased by them.

For ready money payments a liberal allowance will be made. Should time be required, payment may be made by instalments, bearing interest ; a title will be given, so soon as one half of the price shall have been paid, and a mortgage granted for the remaining moiety of the purchase-money.

If preferred by settlers on the large blocks, an equivalent annual rent will be received, redeemable at any future period at twenty years' purchase.

The Company purposes opening roads to the different settlements in the blocks and in the Huron Tract, which roads are to be afterwards kept in repair by the settlers.

They make preparations in these projected settlements for the reception of settlers who may prefer purchasing lots on which such preparations shall have been made; and on special agreement will contract to erect houses, or other requisite buildings: the cost of these buildings or improvements to be a charge in addition to the original price of the lot.

To settlers who are well recommended, and who may in the beginning require assistance in commencing the cultivation of their farms, or providing for their families, until they can raise a crop from their own lands, the Company's Superintendent is authorised to advance, on security, the needful supplies at his discretion, but only to such as may be considered to merit the same.

The amount of any such advances, as well as the cost of buildings, or other improvements, erected or made at the Company's expense, is considered a debt, to be paid by the settler, with interest, before credit can be allowed for any payment as in part of the price agreed to be paid for the land.

They will receive any money which emigrants may wish to deposit, in order to be at their disposal in America ; and bills will be given for the same, in sums not less than 10*l.*, which will be current at Quebec, Montreal, New York, and York in Upper Canada, at the highest rate of exchange, which, by the last advices, was twelve per cent. profit. The Agents instruct parties applying to them as to the manner of obtaining these bills.

Farther particulars may be learned by application at the Company's house in London ; to the Company's Superintendent, JOHN GALT, Esq. York, Upper Canada ; and to the following Agents :—

At Quebec, John Davidson, Esq. ; Montreal, Messrs. Hart, Logan and Co. ; New York, J. C. Buchanan, Esq. ; Liverpool, Hugh Matthie, Esq. ; Bristol, Messrs. W. D. W. and W. E. Acraman ; Plymouth, Messrs. Hawker and Sons ; Hull, Richard Tottie, Esq. ; Swansea, J. C. Morgan, Esq. ; Oundle, Thomas Bell, Esq. ; Edinburgh, James Adam, Esq. ; Leith, Messrs. James Duncan and Co. ; Glasgow, Alexander G. Gilkison, Esq. ; Greenock, Messrs. R. Ewing and Co. ; Aberdeen, Messrs. John Catto, Son, and Co. ; Haddington,

John Haldane, Esq.; Dublin, John Astle, Esq.; Cork, Sexton Baylee, Esq.; Belfast, William Gray, Esq.; Ross and Waterford, Messrs. Watson and Graves; Limerick, John Carroll, Esq.; Londonderry, G. Buchanan, Esq. Omagh; Newry, J. and J. Lyle.

The following general Information is added for the Guidance and Benefit of Persons desirous to emigrate to Upper Canada.

The two principal, and indeed the only usual routes, are by the River St. Lawrence and by New York, both of which may be considered as inaccessible during the winter months. The navigation of the River St. Lawrence is generally closed by the ice for five months in each year, and although the harbour of New York is very seldom so closed, yet the Hudson River and the Erie Canal, which form the communication from thence to Upper Canada, are closed as regularly as the St. Lawrence, but for a shorter period of time.

The usual and the best season, however, for emigrants to proceed by either route, is in the spring, or early in the summer, when there are particular facilities in finding a passage to the St. Lawrence, because many vessels go out in ballast, in order to

return with cargoes of timber and other bulky articles, the produce of Canada.

These vessels are generally of large dimensions, and, being in ballast, have extensive accommodations for steerage passengers. A steerage passage to Quebec may cost from 3*l.* to 4*l.* each for adults, and half that sum for children ; and, where many are associated together, passages are frequently procured at a lower rate ; for which, however, the vessel provides only ship-room, fuel, and water ; and the passengers must lay in their own provisions, which, on the frugal scale to which many of them must be accustomed ashore, may be done for a sum not exceeding the cost of the passage.

From Quebec to Montreal steam-boats ply daily during the summer, and the passage on deck is 1 to 1½ dollars, or 4*s.* 6*d.* to 6*s.* 9*d.* sterling. From Montreal to York, in Upper Canada, or to any place on the shore of Lake Ontario, by means of the arrangements already mentioned to have been made by the Company, emigrants recommended to the Agent in Montreal will be conveyed for five dollars, or 22*s.* 6*d.* sterling each, exclusive of provisions, which may cost from two to three dollars more ; so that from the port of embarkation in the United Kingdom to the seat of Government in Upper Canada, *the whole expense may be*

estimated at about ten pounds each for adults, and six for children.

No heavy or cumbrous baggage ought to be taken ; household furniture, iron utensils, implements of husbandry,—in short, all articles of considerable bulk or weight will cost, in freight and carriage, more than the expense of replacing them in Upper Canada ; besides the trouble of their conveyance, the risk of damage, and the danger of articles carried from England or Ireland being found unsuited for use in America. The baggage of emigrants should consist only of their wearing apparel, with such bedding, and utensils for cooking, as may be required on the voyage ; and any articles of clothing, not intended to be used at sea, ought to be packed in water-tight cases or trunks, not exceeding eighty or ninety pounds in weight.

The journey or inland voyage from New York to Lake Ontario, and especially to Lake Erie, is performed in less time than from Montreal, and emigrants recommended to the Company's Agent at New York will obtain passage-tickets at the same rate as from Montreal, being five dollars each ; but the passage from the United Kingdom to New York is more expensive than that to Quebec, besides that passengers are not permitted

to land at New York until security be given, that, for a specified time, they shall not become burthensome on public charity : so that the route by the St. Lawrence, although more circuitous, and perhaps tedious, is certainly the most eligible for those emigrants who have large families, and who wish to proceed at the smallest possible expense.

The Company's Agents at the different ports of embarkation and elsewhere will furnish such farther information as may be required by persons desirous to emigrate, and to deposit their funds with the Company, or to become purchasers of the Company's lands.

Having thus given the best account I am able of the operations and intentions of the Company, I may conclude by wishing it every success. It will evidently change in time the face of the country, and greatly extend the importance of the colony. The lands are surveyed and laid out according to the laws of Nature, and not chequered, as is the prevailing mode. People intending to emigrate from Great Britain ought to examine the nature of the whole business before they go off. Would they do this, they would meet with more contentment on the farther shore, and peace of mind after their arrival.

EXTENT OF TERRITORY.

THE British possessions in America are said to lie between the 60th and 90th degrees of west longitude, and between the 43rd and 49th degrees of north latitude. The Canadas are thus stated to have an area of 250 thousand square miles. This seems to me to be a narrow view of our extensive territories, seeing that the right of possession is just as good on the large scale as on the small. I would say, that there is a part of the earth lying between the possessions of the United States of America and the Arctic Sea, washed on its eastern side by the Atlantic, and on its western by the Pacific Ocean, designated by some people "British North America," and by others "The Savage and Civilized territories of Canada and their connexions." The extent of surface is about 1840 millions of English acres, of which *one-half* may

be termed *forest*, that is, thickly covered with trees of many kinds ; *one-fourth* water, composing the rivers and lakes ; the remainder, *prairies*, or meadows where timber does not grow, and lastly, a speck of land, about fifteen millions of acres, cleared by the industry of man. The whole may be considered as a tolerable large tract of country, and very likely to contain a quantity of materials of different kinds, somewhat interesting to the enlightened and inquisitive.

That it does contain them to a considerable degree, seems obvious by the journals of its many travellers, by the swarms of emigrants gone over thither from time to time, and by the commercial speculators in furs and farms, who have not considered it beneath them to pay some attention to its resources.

The North-west Company, although now no more, is still recollected by numbers of individuals who were more or less connected with the same ; and be its faults what they may, our knowledge of the great interior was much extended by its means. It was composed of merchants in Montreal, but had no charter to act upon. In the days of its prosperity, the gaiety of that city was great ; balls, clubs, fun and festivity, were much more common than they now are. The old ladies are heard to

regret the downfall of the concern with heavy sighs. The "Beaver Club" came into existence during its reign. At this club too, our furriers and their friends assembled annually; but this grand "Canadian Carnival" is now dwindling away, with all that imperial pomp and sway which once attended it. The city has for several years become comparatively quiet. The charter of the Hudson's Bay Company, which extended to the "countries, coasts, confines of the seas, bays, lakes, rivers, creeks, and sounds," connected with Hudson's Bay, was partly disregarded by the North-west Company, and horrible outrages were the consequence. The hunters quarrelled in the remote wilderness, and slew one another. Governor Semple, and twenty men of the Hudson's Bay Company, fell a sacrifice at the "Forks of Red River," in their own territory; for the Red River is discharged into Hudson's Bay. The late Lord Selkirk, a chief proprietor in the Chartered Company, justly became indignant at these inhuman proceedings, and succeeded, by his own intrepid exertions, in driving the North-western people out of the field.

But although this has been done, it is not known why the Hudson's Bay Company has any reason to assume as a right, various extensive "Hunting Tracts," which have no connexion with

“Hudson’s Bay.” In many instances, they are thought to overleap their charter. For what have the St. Lawrence, and all the great rivers that fall into it, to do with Hudson’s Bay; and that enormous territory west of the Rocky Mountains, whose waters disembogue into the Pacific Ocean?

Broils take place, at present, between the New York, or American Company, and that of Hudson’s Bay; for America, by the treaty of 1818, has as good a right to do as she pleases with the territory west of the Rocky Mountains, as we have; while the Russians, and others, have perhaps a better right than either. Now, as the ten years, which by the said treaty rendered this a neutral tract, are expired, we expect to see a New Boundary Line soon drawn up by the two nations regarding this property, which is, indeed, conceived to be very valuable, not only on account of being, perhaps, the noblest fur country in the world, but also for its indented coast fronting the eastern world. “Nootka Sound” ought to be settled as soon as possible, and an immense traffic might be at present carried on through the interior of America. The day is not far distant when we shall have no occasion to *double* either Cape Horn or the Cape of Good Hope. To go

to China, we shall reach it by a much more commodious route, through the "Inland waters of Canada," by steam-boats. It seems no way wonderful to me, that these Fur Companies cannot agree, as even on the Missouri, which evidently belongs to the Americans, the Hudson's Bay hunters are to be found. As regards hunting on that great snowy tract whose waters fall into the Arctic Sea (and I am told it richly abounds with fur), there is not so much cause for blame. However, as an honest Company, it is supposed it might hold by its charter, and escape the blame that is to be heard imputed to it. We could wish that the Hudson's Bay Company would examine their extensive property, and see whether or not it contained any thing valuable but fur; as we certainly think it does, and it has the full right, by its charter, to appropriate whatever may be found to its exclusive benefit.

The wars between these companies have been the means of making us better acquainted with the great inland wild. Twenty years ago, we were gravely informed by a "printed circular," that there were not 500 acres of land on the extensive banks of the Ottawa capable of growing Indian corn; when the truth is, there are more

than 500,000. But it was the interest of the fur-traders to keep the farmers ignorant, as cultivation destroys the wild beasts.

In extensive unexplored countries, complete information on any one subject can seldom be obtained. We have to rest thankful for what can be got; and if that affords some pleasure, we are inclined to seek for more. Thus does our knowledge extend on any subject. Farmers, politicians, naturalists, &c. are apt to consider things according to their various habits and tastes. Those who mislead the greater number of mankind, by giving mistatements affecting the vital interests of the multitude, deserve the largest share of castigation; while those who bring forward a few facts, have reason to think they may receive a small portion of praise, although even in this they may be deceived.

Those things which happened to fall in my way, particularly if they accorded with my disposition, have come under consideration, so far as I have understood them, or as my information extended. The exertions of an humble individual in a huge wilderness, are seldom reasonably expected to be very extensive: information, to be fully depended on, cannot be obtained without considerable difficulty; and where a variety of

subjects occur that may be viewed under different aspects, both boldness and caution seem occasionally necessary to be preserved.

I have been in the habit of investigating those laws of nature which seem beyond our reach minutely to unravel, as they partake of that broad, but irregular feature, which, although bold and imposing, cannot be easily reduced to the strictness of arithmetic, yet approximated so near as to come under the dominion of science.

CONTINENTAL WATER COMMUNICATIONS.

IT is to be apprehended that we have given up the grand water-communication through the Continent of America to the Government of the United States; the best route, apparently, being from Lake Superior, by Assiniboins, Moose, and Missouri Rivers to the Rocky Mountains; afterwards into the South Branch of the Columbia, or Clark's River, and so down to the Pacific Ocean. If we seek for the communication within our possessions, which would be by going from Lake Superior as far north as Lake Winnipeg; westerly by the South Branch of the Saskashawan to the Rocky Mountains; then through Fleming's Notch from the Black River, into the North Branch of the Columbia: this route would take us 1500 miles about, and being for a considerable extent

three degrees farther north than the other, it would be more troubled with frost.

Yet there seems to be some difficulty in the way, even were we in possession of the vale of the Missouri. Captain Clark, the celebrated American traveller, who, in company with Captain Lewis and thirty-one men, very carefully explored the North Branch of the Missouri in the year 1805, found that, its descent being slow, it had many wimples to make. It was full of timber, imbedded in black rich mud; and in it there were many bars and sandbanks. From its confluence with the Great River Mississippi to its *Falls*, the distance was found to be 2575 miles; which commenced at the Rocky Mountains. Thus, we find there are about 600 miles taken up with wimples, which are troublesome to navigate. Travellers give us little data from which the elevations of the waters may be gathered; but from every thing we can find, the level of the Missouri from the Rocky Mountains east to the Mississippi, is nearly the same with that of Lake Superior, and the height of land between this lake and the head waters of the Mississippi is not great; so that the source of the St. Louis stream, which runs into Lake Superior *without rapids*, is quite close to the *savannah*

stream of the Mississippi. I have been told, that they rise both out of *one meadow*, not half a mile from each other, and that when the snow is going off the country, this meadow is flooded with water, a part of which goes off by the one stream, and part by the other. Thus we find that the St. Lawrence and Mississippi, at a certain season, are connected. But the wimples and other obstacles of the Missouri are nothing, when compared with the trouble that would attend the *canalling* of the Rocky Mountains from the Falls of the Missouri to the source of Kooskooski River, which is a ramification of the South Branch of the Columbia. The distance is 340 miles, 200 of which is said by Mr. Clark to be *good road*, the other 140 over tremendous mountains, for sixty miles covered with eternal snow. Now we know that this *portage* of 340 miles is between the north latitudes of 46 and 47 degrees, where the line of eternal snow, or *congelation*, is 8800 feet above the level of the ocean; and as these mountains for 60 miles were elevated to this bleak station, we may conclude that, in some instances, they rose much beyond it. As Lake Superior also, which we have considered to be on a level with the Missouri, is 1050 feet above the ocean, the Rocky Mountains must therefore be 7750 above the still waters of the

Missouri and Columbia ; to surmount which, by means of hydrostatics, may be considered impossible.

In crossing this mountainous range from the Falls to the Kooskooski, the travellers endured great fatigue, and showed a wonderful perseverance. They found little to eat but wild berries; they met with a wandering Indian tribe, and subsisted for some time on horse-flesh ; for horses are to be found about the Rocky Mountains. The Indians caught some salmon fish, which were dried ; but on being eaten they almost poisoned the party. Although this was in autumn, they suffered much from the cold. On surveying the Missouri above its falls, which are extensive, but how far so I am unable exactly to ascertain, we come to the *Forks*, after passing over a wimpling distance of 1273 miles, or 3848 miles from the mouth of the Missouri. These forks are in north latitude 45°, and about 480 miles west from the shores of the Pacific. They compose three rivers of nearly equal dimensions, and are named by the American discoverers after Jefferson, Maddison, and Gallatin. As to giving two of the *forks* to the first two gentlemen there is nothing curious, but giving the third to Mr. Gallatin deserves to be considered. He became the American Minister at the Court of

Great Britain, and he and Richard Rush were the two appointed to fix the Boundary Line with us in the Treaty of 1818. Thus, the merely calling one of the *forks* of the Missouri after this gentleman, sufficiently proves that he was a patron of the travellers; that he was well aware of all their discoveries, and well knew the propriety of keeping us out of the Vale of the Missouri, by bringing in the latitude of 49° north, and composing the famous riddle about “the most north-western point of the Lake of the Woods.” The *Jefferson Fork* is the only one yet fully explored; its fountains are in the Rocky Mountains, 248 miles from its mouth. Thus the Missouri, to one of its remote sources, is 4096 miles in length; and as the Missouri is only a branch of the Mississippi, which branch falls in about 1500 miles from its mouth, the total length to the ocean is therefore 5596 miles; the longest river on the face of the earth.

From the fountains of the *Jefferson Fork* of the Missouri, to the *East Fork* of Captain Lewis' River, which is an important branch of the Columbia, the distance is 70 miles across the Rocky Mountains; consequently this *portage* is 270 miles shorter than the former.

Here the mountains are not so high; but being three degrees farther south, the line of *congelation*

will be somewhat higher. Although less snow therefore is met with than at the great *portage of Kooskooski*, still the mountains may be equally high, and as impassable for a canal. The rivers which descend from the Rocky Mountains to the Pacific are *frightfully rapid* in their course. Travellers descending them run the greatest hazards possible. Mr. Mackenzie was often nearly drowned, and the American explorers suffered severely from this cause; they were frequently upset in their canoes, and had to scramble half senseless ashore amid the rocks and foaming rapids; thus losing their canoes, food, clothing, &c. and left destitute in a savage wilderness. These are circumstances which are not to be overlooked by a considerate people. The reason of the rapidity of these rivers being greater than the Missouri and others on the opposite side of the mountains, is obvious. Their fountains are *nearly on a level with each other*; but the distance, of course, to the ocean is about ten times less. A fall of 2000 feet in 500 miles, will indeed create *frightful rapids*; whereas the same fall in 5000 miles will form rapids and waterfalls of quite a different character. The Columbia may be said to be *one great rapid* throughout its extent. The influence of tides of the Pacific Ocean is felt 184 miles from its mouth,

or within five miles of the *great rapids*. Large sloops may ascend as far as the tide. Its length, by Captain Lewis's Branch, to the utmost fountain in the Rocky Mountains, is about 860 miles; by Captain Clark's Branch 840 miles. The fountains of these two great branches are near to each other, and within fifty miles of *Lake Eustis*; the head waters of the *Yellow-stone* River, which is one of the great branches of the Missouri. Considering every thing explicitly, we find that *Cook's Inlet*, which has been considered the *outlet* of a large river, or some of the rivers which fall into *Nootka Sound*, will be preferred for making the great water-communication through the Continent of America. Mackenzie passed the Rocky Mountains without trouble, for, as the chain extends to the north, it gets broken by various Notches. One of these, between the Black River and a river of the west, yet unexplored, was discovered by *Fleming*, the fur-trader, in 1823. This *Notch* seems to be in latitude 49° 30' north, and the unexplored river seems to be a fork of Clark's River. It is rather singular that this *Notch*, or gap, is just within our limits prescribed by the Boundary Line. Had the American ministers known this, they would have formed the quibble on *Lake Winnipeg*, and not on the *Lake of the Woods*; for by

this *notch* the grand navigation may be opened, a thing impracticable in the States of America. Whether or not the *Darien Canal* will ever be attempted is doubtful ; many sensible people who have examined this isthmus, inform us that they conceive it hardly practicable, as a very high ridge of sandstone intervenes between the oceans at the place where the isthmus is the narrowest, being only 78 miles. The best route is thought to be from the *Gulf of Dulce*, in the Bay of Honduras, to *Guatemala* on the Pacific, by way of an inland lake called *Nicuriaga*. This lake ought to be the summit pond to supply the canal with water : the distance by the lake has been reported to be about 124 miles. It is also said that, except in the *rainy season*, there is little or no water in this lake ; and consequently it is not to be depended on ; and even that if water were found in sufficient quantities, the cutting would be considerable.

Yet, from all the information I can gather respecting this great object, it seems to me to be *practicable*. But where is the nation that will carry it into effect ? The Americans seem destined to perform the work ; and by exacting a toll from the ships of all nations, or by excluding all but themselves, while they reap the whole of its commercial benefits, they might probably find

it answer. It may be true that the lake may have little water, except in the rainy season, but then, when its outlets were shut, it would not be allowed to run out: however, being within the tropics, the evaporation from the hot sun would be great. It has been argued that the Pacific is several feet higher than the Atlantic; but this is inconsistent with the laws of gravity and the tides, and is not to be believed until better investigated. Neither the Isthmus of Darien, nor Suez, have yet been sufficiently examined by any person in these times to return a scientific account.

The canal route through the Continent of America, by the great inland seas of Canada, seems superior to that proposed through the Isthmus of Darien; as this would not only shorten the navigation between Europe and Asia, but greatly tend to disclose an enormous inland territory, whose wealth and various resources remain yet unexplored. For great mercantile stations, the mouth of the Columbia and Nootka Sound must be ever considered as such. The Americans at present *drift* along the coast, and are forming settlements. Had *Mactavish* the Fur-trader, who was slain there in 1814, by some faction or other got up against him, been spared, we should ere now have had a flourishing town there; or had

Ledyard, the enthusiastic traveller, been allowed to prosecute his plan, all the bays and rivers on the north-west coast of America would most likely have been explored ; whereas, we have to content ourselves with seeing it both discovered and settled by those not of our nation.

OF LANGUAGE.

THE fancy, pickpocket, and vulgar slang of Great Britain continues to increase in America and New Holland, and it may ultimately sap the foundations of our noble classical language. Prize-fighters, sharpers, and other vagabonds, transported to the former, as they are now to the latter country, for various violations of the law, generally arrive, if they live long enough, at stations of considerable eminence in the colonies. They no longer retain (as it would not be for their interest) the manners and propensities which caused them, whether they would or no, to quit their native shores; but one thing they retain, and extend, namely, their vile language. This, forsooth, is a legacy given to their families; it becomes the popular language, because it ema-

nates from the most numerous and respectable class.

At home, this abomination has no effect on the genuine language of the realm ; books, literature, &c. and a learned community far outnumbering the ignorant and vicious, keep it under in its proper place ; while in those receptacles for convicts alluded to, it becomes decidedly the court language. Nor is this all ; when our thieves and swindlers find that their mystic words are better understood by the multitude than they could wish, they readily invent and propagate other phrases, so that their meanings may not be understood, except by those of their own fraternity : hence this continual *invention* of language. The famous *slums of Holborn* teem with such *inventors* ; so that it is nothing erroneous to say, that there are daily upwards of two thousand persons in London deeply cogitating how they shall best obscure the English tongue.

The great Dr. Johnson, when he was arranging his noble national Dictionary, did not seem to be aware that he had so many mortal enemies at his door. Not only do they invent many new words daily, but, even by *bets* and otherwise, contrive to make something out of the old. They are diligent lexicographers ; examine into words and

terms of doubtful import, and construe them according to their wishes. We are even told they have slang vocabularies printed, to *aid* them in their *honest intentions* in turning their villanies to the best account. Every ship, then, that sails with convicts to New Holland, carries a certain quantum of these linguists: hence the many terms for the same things that we discover emanating from these people. Mixtures, revolutions, additions, and changes, are ever taking place. At one time, when it is meant we should "take money out of our pockets," we are told to "down with the dust;" again, that we "fork out the blunt," or "table the needful," or "launch out the rhino," or "thimble the brinnels." What perplexity is here! Now, supposing this system to continue for many years, and many it has continued with the United States of America, what must be the result? Why, we shall hardly understand the meaning of one-tenth part of what is told us; and, indeed, if we could not *guess*, we should find it many times very difficult to "get along:" here then is the *ruination* of our classic English language already begun. It is nonsense to imagine that our authors will there live immortal in their native strains.

The day may yet come when the great poem of "Paradise Lost" shall be translated "Eden no

go;" Hudibras a "Rum one;" and the Merry Wives of Windsor the "Lushie Kells." To this subject I would beg the attention of the studious and liberal-minded scholar, as not being unworthy of him; for although we may laugh at all these words and terms at present, because we know how they ought to be, still there are many who know nothing of the matter. The Americans are nurtured in the faith, that the language handed to them by their convict ancestry is the one most proper for them strictly to preserve. So, though we are apt to ridicule, they are inclined to act towards it otherwise; we must place ourselves in their situation. We must examine into the various causes which have led to this, before we come to any conclusion respecting their present character.

The name Canada has much puzzled the lexicographers. Some will maintain that it originated from the Spanish words "*aca nada*," "nothing here." When *Jacques Cartier*, the fanciful French navigator, arrived in the *Bay de Chaleur* in 1534, on inquiring of the Indians the name of the country, he fancied they said *Aca nada*. This being a Spanish term very popular in Europe at the time Jacques left St. Maloes, in France—for this was the period when the Spaniards were exploring

every creek and mountain on the coast of America for gold and silver, and where they could find none, they exclaimed “aca nada,” to express their grief;)—our navigator, from this circumstance, conceived that the Spaniards had paid a visit before him to the *Bay de Chaleur*, and taught the Indians to sigh “aca nada,” for, indeed, there are no precious minerals yet discovered in that bay. Others will have it, that the name is derived from *Kanata*, an Indian word signifying “a collection of huts;” and this seems to be most probable, for Canada surely abounds in such collections. “*Quel Bec!*” “what a beak or promontory!” is considered by the learned, as we have said, to be the origin of *Quebec*; the same words being exclaimed by one of *Cartier’s* sailors on first beholding the headland. Others again will argue that it is named from a small town in France, situated on a promontory stretching into the Seine, as Cape Diamond does into the St. Lawrence, the name of which is Caudibec. On ancient boundary marks and brass plates lately discovered, it stands K——becque. The French are not able to prove the meaning of the blank after the K——, unless it be to represent the word that the pronunciation of this letter occasions. The Indian name for Quebec is *Tiantontarili*,

meaning, in the language of the Wyandot tribe, *two Capes* looking at each other, which Cape Diamond and Point Levi at this place do. It is a pity to reject the Indian names of places, as they have ever some natural connexion with them. The French paid these more respect than we do; and when they do change them in any instance, it is generally with a due regard to natural position.

Thus we call the capital of Upper Canada York, because there is a *York* in England; and as this metropolis is not of very great extent, and very likely never will be, it is termed *Little York*. Mr. Gourlay, for political reasons, conceives it to be very properly named, and plays away on the subject with considerable humour. A *York shilling* not being so large as a British one, tends also to detract from the importance of the place. It is a saying with the Americans, when they set about doing any thing quickly, "that they will do it in a couple of *York minutes*," time being even considered of less moment at Little York than elsewhere.

Toronto was the Indian name of this place, which means the "Hut by the Lake." I have not heard what was the French; but judging from what I have found them to name similar places, it was probably "*Coteau du Lac*."

While time continues, we find Nature indulging in all manner of changes. At present we behold the dense forests of America vanishing before the hand of man, and one race of human beings extirpating another. On making inquiry regarding this ambitious people, we discover them chiefly to be sprung from ourselves ; but so much changed in language and general manners that we hardly know them. The period does not seem to be very far distant, when they will have lost all traces of the original ; when antiquarians will dispute with each other regarding the land they came from, as we do now with the Indians, and are not able, with all our lore, to decide whether they emigrated from Asia or Europe.

This circumstance may take place many years before they have reached their maximum. Faint murmurings of our present tongue may then perhaps be heard amongst them, as whisperings of the Welsh and Gaelic are now recognised by delicate ears to exist amongst tribes in countries most remote from, and apparently never connected with Britain. Such prophecies may be deduced from circumstance and analogy with considerable correctness ; and after the great forests have been levelled, the wilderness fully cultivated, the Indians almost obliterated ;—after the land begins to

be fully stocked with towns, inhabitants, riches, and luxury; the climacteric of civilization and refinement being thus obtained, a grand retrograde motion may take place. The woods may grow again, but with a different class of trees from that we now find; while another race of Indians may be found to people them, hunting and fishing away as formerly.

HALIFAX.

THIS town is the capital of Nova Scotia, situated on the South-west bank of a large peninsula or tongue of unfertile land stretching into a beautiful bay of the Atlantic Ocean, in north latitude $43^{\circ} 35'$, west longitude $64^{\circ} 23'$. It has many elegant structures of stone ;—the Province building cost 72,000*l.* the architecture of which is much admired. The streets are well Macadamized, and cross one another at right angles ; they run parallel to the line of shore, and directly up and down the face of the bank or hill, the summit of which is about 200 feet above the level of the bay. On this stands a fort, much decayed ; the gun-carriages, and platforms are quite rotten ; willow-bushes, overgrowing the bastions, have sprung out of the remains of the stockades.

The harbour is capacious and deep, and hence

much extolled by the British navy: it is well sheltered from storms by George's Island, which intervenes between it and the main ocean. This island is well fortified, and stands about half a mile from the town, towards the south.

The harbour is about a mile in width, and will average eighty feet in depth: from George's Island to the Narrows it is nearly four miles in length. Above the Narrows, there is a deep basin, which may yet be required as an inner harbour: this is full three times larger than the outer, and much deeper. It was here, in 1758, the English Admiral pursued and sunk the French fleet, after the taking of Fort Louisburg. Ships may get into this excellent harbour let the wind blow from any quarter. On approaching, they meet with a conducting lighthouse, on Sambro Head, about eighteen miles from the anchoring-ground; and on passing Macnab's Island, about four miles from it, another lighthouse meets the sailor's eye, on Maugre's beach.

The channel can hardly be mistaken; strangers may bear away for the harbour with safety without the aid of pilots. Hence "Branch Pilots" are considered unnecessary here; yet, if the captain of a ship has any dread, or doubts his capability, he will meet with plenty of "Farmer fisher-

men," who will relieve him from this source of anxiety for a sum not exceeding thirty shillings, and who will, moreover, feel happy at finding such employment.

We were running in before a fresh November breeze, and observed a small shore-boat timing itself to our track, off Sambro Head. On nearing it, a pair of country lads were observed to manage it; but they knew not the method of bringing their boat alongside, and getting aboard a ship going free at ten knots an hour. Our sailors doubted they would swamp; but on heaving them a rope, one of them instantly flung a bight of it round his body, and was hoisted from his comrade aloft to the quarter-deck.

The bold scenery of the wild shores of Sambro, with its benches of moor-stone rock; the green fields of Macnab's fertile isle; York redoubt and Telegraph Station on the lofty brow, are hailed as prominent and beautiful objects by those coming off the ocean; while the Dockyard, Garrison, and Dutch Church, point out the town very distinctly.

Herrings, halibut, mackerel, &c. are very plentiful in the bay, so that the inhabitants, and sailors of fleets, are well supplied with excellent fat fish. Lobsters and crabfish are very abundant: during the season in which they are caught, the Dart

mouth shores are splendidly illuminated with Indian torches employed in catching them. The fishing-boats are usually rigged with shoulder-of-mutton sails, are closely decked, and cut through the waves with great velocity. There is an annual regatta, or boat-race, which is well supported; as are also races with horses, in the pleasant September weather. Thus the tide and turf are both equally esteemed here by the sporting world.

The population, whose manners are untainted by American influence, is supposed to amount to 15,000; the English habits and customs are well preserved, in consequence of which the town is generally admired by European visitors. In truth, as it is so closely connected with us in every respect, a depôt of our army, and a station of our navy, we could hardly suppose it otherwise. Fancy balls, amateur operas, &c. amuse the gentry in winter, while fashion and beauty are said to be met with amongst genteel parties. Pot-shops and taverns do not prosper; indeed, when we consider the town as a rendezvous of soldiers and sailors, we are astonished at the general correctness of manners in the place. The shopkeepers were found to be remarkably civil; few haughty personages were to be met with—fops least of all: neither did we anywhere see a great deal of con-

sequence assumed. The ladies had generally fresh countenances, and wore neat dresses. Churches were well-attended on Sundays, and the clergy seemed to be concerned about the eternal welfare of their flocks. Some of them, however, preached rather loud, and seemed to forget that "we have ears that can hear," when inclined to do so. The markets were well supplied with eating materials, flesh, fish, and fruit.

Farms in the immediate neighbourhood are not very fertile; indeed, the plashy flats behind the hill betoken a snipe-shooting country.

The town is well watered, some of the springs are as clear as crystal. This not being a limestone country, a brown slaty rock prevails, not very good for house-building; a mundic vein runs through it, which colours the plaster of the rooms. The public buildings are constructed of red free-stone, brought from the quarry on the Gulf shore; lime comes from the West Indies in stalactite form. In the outskirts of the town, we met with some neat brick buildings; the houses of merchants, probably retired from business, with flower-plots and iron railings before their doors. We could not help reflecting on the quiet lives those people must lead, when a party of wanderers learned more of Halifax in a few hours, than they

did by residing in it for many years : altogether, it is a place of much importance. Trade seems to flourish ; and when the steam-packet business across the Atlantic is fully organized and established, it will doubtless receive farther embellishment.

On the opposite side of the harbour there is a neat clean village, called Dartmouth ; behind this, a chain of considerable lakes extends to the Bay of Fundy. These waters are now being converted into a beautiful inland navigation : we very narrowly examined them, and crept along the banks to the Shubenaccadie River. The length of the navigation is about 50 miles ; the locks will be twelve in number, 80 feet long, by 23 feet wide ; but the stone to build them is not easily obtained. Granite boulders are split in Herring Cove, on the opposite side of the harbour : the expense of each block brought to the works is about three pounds. The stone for hollow quoins, which is red free, and all the ironwork, are brought from Scotland. The expenses of the whole will be considerable, but as it will open up mines of slate, coal, iron, and copper, also a fertile country towards the interior, having valuable timber, it is considered that it will repay the trouble many fold. The gentleman superintending it is ingenious and in-

dustrious—his name is Francis Hall. These lakes, towards Halifax Bay, are chiefly surrounded by a sterile country, which seems nevertheless to be full of valuable minerals. The waters teem with a fine variety of trout ; the roads round them are skilfully laid down, and kept in excellent repair ; mail-coaches with four horses pass along. It is supposed that the materials for the canal will be more easily obtained, and good quarries discovered, as the work proceeds. If conducted into Halifax Bay, the work would be considered more complete ; but the difference of level between the Dartmouth Lake and the Bay is 64 feet, which is a considerable obstacle to this last plan. The medium rise of the tides in Halifax Bay is about 12 feet. In the Bay of Fundy they rise in some places to 80 feet ; at Partridge Island, 50 miles from the head of the Bay, the rise is 70 feet ; at St. John's, the capital of New Brunswick, it is said to rise 90 feet. This great bay is full of shifting sand-banks. A water communication has been proposed to be opened between Cumberland Bay, in the Fundy, and the Bay of Vert, in the Gulf of St. Lawrence. The distance is said to be 14 miles, the country level. The tide in the latter Bay is 12 feet, and in the former 60 feet. •

Now, my indulgent Readers, we have got aboard the crazy old transport for England : she is full of invalids, fore and aft—old soldiers and their wives, who have seen many battle-fields, who have withered in the climes of the sickly Tropics, or guarded Canada up to their necks in snow, and kept her out of the hands of the haughty invaders. They are not without their children, who gambol about on the deck in fine weather ; and among these are orphans, dear little creatures, who have found fathers and mothers in the faithful friends of their departed parents. The ship, beneath the floorings, is filled with damaged stores, chiefly shot and gunpowder : lights must be cautiously used, and when the ocean begins to heave, we fear from the creaking of the timbers, that the emission of a little spark may send us all to eternity. Our official men look to their duty, and measure rank and importance to the letter. As we near our native shore, formality gives way, and disputants begin to compliment each other. The breeze from the land of genuine freedom is felt the more strongly as we approach it : the Eddystone is made, and the coast beheld with intensity of pleasure ; we gaze until

night dims it from the view. In the morning we find ourselves on the beach, and wander away on our various pursuits, or to our several destinations: some, like myself, perhaps, to seek the dark London Alley, remote from intrusion, and there dare to open the foreign budget, and humbly display its contents to the world.

THE END.

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